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GENERAL VIEW OF UNION MARKET, ST. LOUIS, MO.

MUNICIPAL MARKETS OF ST. LOUIS

Three Municipally Operated Markets—Outside Stalls Better Patronized Than Interior of Buildings—Structural Features—Sanitation and Refrigeration—Methods of Renting and Prices Obtained—Financial Aspect

By CHARLES CLAUDE CASEY

THE City of St. Louis is operating three municipal markets and owns the land upon which a fourth is being operated by a private stock company. The four markets are the remains of a score of markets started half a century ago, most of them operated by private interests.

Union Market, located in the heart of the business district and covering a full city block, is one of the most important markets in the country, though not the finest. It is still an imposing structure, and is in at least a sanitary condition, but it is far behind what might be considered modern in a market.

Both of the other municipal markets have been allowed to run down and are a burden on the city, without much apparent appreciation by the citizens. Soulard Market, located about two miles south of Union Market, has been practically deserted except for wagon business. The South Market, located about six miles south of the dividing line, and about six and a half

miles south of the Union Market, is still patronized in an indifferent way, but it has long since ceased to pay its upkeep.

The private (Biddle) market, with more energy in its management than in some of the city markets, is still profitable, but has been allowed to degenerate until it has become very unsanitary. It has no sanitary or drainage provisions, except by way of gutters provided by the city in the streets.

UNION MARKET

The main building of the Union Market faces 110 feet on Broadway and 270 feet on Morgan street. It is built of brick, with stone trimmings. The metal-covered, steel-trussed roof curves gracefully downward from a flat "promenade deck" in the middle, formerly used as an observation vantage point, but now little used because of surrounding tall buildings. The floor is of brick, which, though still in a pretty good condition, is not overly sanitary. There are no inside partitions except the

matched and beaded sash partitions enclosing the restaurants in the southeast and northwest corners. The double rows of stalls in the center of the building are separated lengthwise only by the heavy meat racks.

With its row of large windows across each end and along each side, and its two big skylights, the building is well lighted. For dark days, however, and for the three or four hours the market is open at night (the market is open till 9:30 Saturdays, 6:30 other days), electric arc lights are provided; these are supplemented by incandescents over the stalls, provided by the tenants.

At each corner of the building is a tower about eight feet square, giving the one and a half story building a more imposing effect. The southwest tower contains the toilet rooms, one on the ground floor being for men, and immediately above that, and reached by a stairway from the inside of the market, one for women. Both are kept clean with daily flushing and occasional disinfecting. Two of the other towers have been converted into smokestacks and ventilators for the restaurants by closing up their windows from the inside with metal doors. The northeast tower contains a stairway to the inside balcony in the east end of the building. The balcony extends fifteen feet over the stalls across that end, and was formerly used for the market master's office and for supply storage space. A fire which damaged the balcony some years ago resulted in the removal of the office to another part of the market, and the balcony is now used only for stretching the flushing hose out to dry.

Refrigeration is particularly well provided for. Each stall which desires it has underground pipe connection with a nearby cold-air refrigerating system. The butcher stalls all have refrigerator counters with curved glass tops for the display of meats. These are usually covered over with boards during the winter and the meat is displayed on top, but in summer the meats are laid in the cold-air chambers plainly visible from the aisles, and the patrons can choose their cuts without the necessity of removing any from the refrigerators until sold.

Two wholesale firms—meat packers—have large refrigerators in the market, both about 8 x 25 feet, occupying three stalls. One of these is still cooled with ice, but the other has been connected with the cold air system. Several small refrigerators of the ice type have also been installed by retail men. Individual occupants pay their own refrigeration bills and furnish their own refrigerators. Counters of the ordinary type are furnished, but in most cases these have been replaced with the modern refrigerator counter at the tenant's expense.

The main building is flanked on the south by a long wooden, shed-like structure, containing a double row of stalls. This is separated from the row of stalls along the outside wall of the building by a wide granitoid aisle; on the other side it faces the alley. The roof over this section, protecting both the aisle and the six-foot sidewalk along the alley, is supported by tubular steel posts in the aisle and wood posts along the alley. On the other side of the alley is a similar structure, about twenty feet wide and facing on Lucas avenue and the alley. The projecting roof extends over the alley sidewalk and over the twelve-foot sidewalk on Lucas avenue, the Lucas avenue



UNION MARKET, COUNTERS FURNISHED BY CITY
Decorated for Christmas Trade.

section being supported by steel posts and the alley section by the square wood posts. In almost every case the stalls on the Lucas avenue side extend through and include the stalls on the south side of the alley, the latter entrance being used for receiving supplies. These double stalls form small rooms, most of which are used for ice cream and soda parlors.

Extending entirely around the block is a row of stalls occupying eight feet of the 18-foot sidewalks and protected by permanent awnings of wood and steel. All of these outside stalls have sliding fronts and sides, which are easily pushed up out of the way when the market is open and drawn down into place to protect the contents of the stalls after closing time.

All the outside passages and sidewalks are of granitoid. These, and also the brick floor of the main building, are kept tolerably clean by a daily sweeping and occasional flushing with the 1½-inch hose provided by the city for that purpose. The flushing is done by market employees. Drainage traps carry off the waste water to the sewer.

In the matter of drainage the market is weak, for the two 4-inch flush drains are the only provision of that nature. There are no individual hydrants in the stalls, except those furnished by the tenants themselves. The city furnishes two hydrants, one inside the market and one in the alley passages.

Every lessee, as a consideration of his lease, must, when the market closes, remove all vegetables and other articles from the market or put them into clean sanitary coolers, and all animal and vegetable offal and rubbish must be removed from the market place. Butchers must cause their table, meat blocks and other fixtures to be thoroughly scraped and cleaned. In addition to these requirements, the Revised Code of the city says: "The market masters shall cause the market house and market places to which they shall be respectively appointed to be thoroughly cleaned and all the filth to be removed therefrom by the scavengers employed for that purpose by the city, and shall keep the footways and steps in the winter season clear of ice and snow." These regulations are enforced.

Each stall keeper is required to paint the woodwork of the stall and his wooden fixtures which need painting at least once in six months. The city comptroller decides the color of the paint to be used, that it may be uniform throughout the market. This, if strictly enforced, would add materially to the clean appearance of the market; but, though an ordinance requirement applying to all markets, it is not enforced very rigidly. The Union is painted white inside, but the paint does not look very new. Among other regulations enforced is one prohibiting the sale of intoxicants in the market places.

Duties of the market masters are prescribed by city ordinance. They include special police powers for preserving order, and direct him to inspect scales and measures to see that citizens are being fairly treated. He is authorized and directed to seize all short-weight articles and every article of food that is not up to the standard quality. Berries and similar farm products

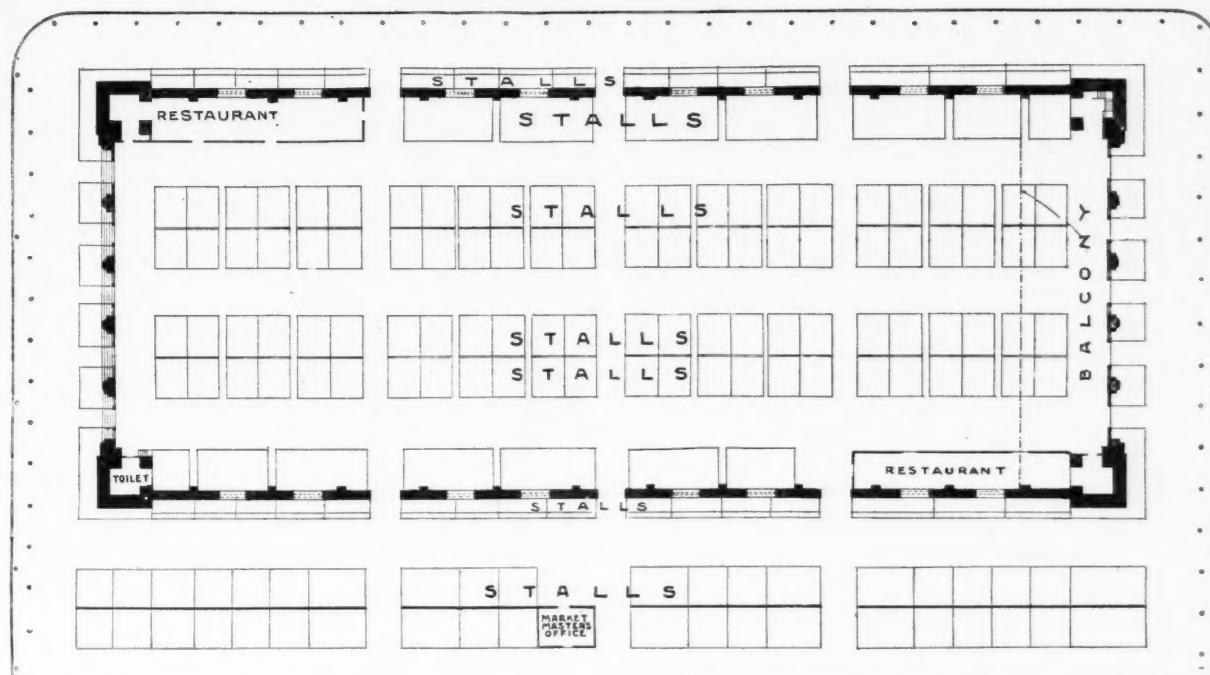


OPEN-AIR STALLS, UNION MARKET
Main building at right background.

MORGAN STREET

SIXTH STREET

BROADWAY



ALLEY

ALLEY

LUCAS AVENUE

MAP OF SITE OF UNION MARKET



INTERIOR OF UNION MARKET, FROM BROADWAY ENTRANCE

may be sold in original crates of any size, without regard to the fairness of their measure, but any citizen has a right under the ordinances of the city to demand the weighing or measuring of any purchase.

The market master is to keep order, enforce regulations, supervise the market, assign places to the market wagons, act as custodian of the market, decide disputes between patrons and owners of stalls, weigh or measure every article about which there is question, on tested scales and measures; rent wagon stands for short periods. Failure to obey any reasonable orders or decisions of the market master is punishable by a fine of from \$5 to \$100, so he is a sort of czar in his bailiwick. He gets a salary of \$1,000 a year, and has four assistants at \$50 a month.

Stalls are rented, cash in advance, every six months; butcher stalls inside the market on the first Monday in January and July, and the others on the first Monday in May and November. The stalls may be auctioned once in five years, and prices may be fixed at any time by the comptroller, excepting between rent periods. The ordinances reserve to the city the right to cancel any lease on thirty days' notice. Failure to occupy a stall for six consecutive days, except in case of sickness, forfeits it, advance rent included. Two violations of the market regulations has the same effect.

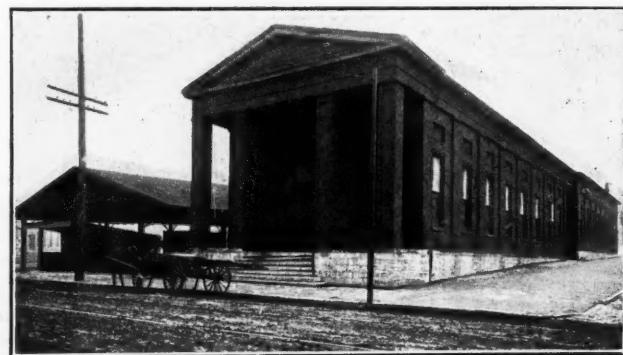
Union market covers a city block of 1.4 acres, and was purchased in 1866 at a cost, including the building, of \$245,000. The ground alone is now worth about \$1,000,000, and the present value of the building is estimated at \$200,000. It is now surrounded with large business houses, and the land is rapidly increasing in value; in fact, some have thought it too valuable to be used by the city for this purpose. In 1908 the people voted down a proposition to issue \$500,000 worth of bonds for a new building on the same site, similar to the \$490,000 modern market building in Baltimore, the reason for rejecting the proposition being largely the opposition to it on the part of the retail dealers, those near the market opposing it because it would centralize the business of that locality, and those at a distance because it would tend to draw business away from their district; also because of the lack of interest on the part of most of the voters. The building contemplated would occupy the entire block, being two or three stories in height, and contain modern glass-covered market stalls around the sidewalk space, to be used for fruit stands and the like; the interior, with the best drainage and ventilation, to be occupied by stalls for meat, poultry and fish. This plan was advocated by the then city comptroller, James Y. Player, who estimated that the returns would be more than sufficient to pay operating and maintenance expenses, interest on the bonds and a sinking fund to redeem them in fifteen years. The present comptroller, Mr. Benj. J. Taussig, estimates somewhat differently, but believes that the present market should pay the city at least \$80,000 a year. Last year the market brought in a revenue of \$40,000, which has gradually increased from \$30,000 eight years ago. The stalls are let at auction, but the stall holders have combined and do not bid against each other, and outsiders are prevented from competing for them in one way and another, sometimes by actual violence, which leads to police interference. That this has led to unduly low prices is indicated by the fact that one stall, rented at about \$700 a year, has been sublet for four times that sum. Comptroller Taussig proposes in May of this year, when the leases for the stalls expire, to arbitrarily fix rates considerably higher than any now paid, he having authority to fix the prices.

He believes, however, that the popularity of markets, which is much less than it was fifty years ago, will continue to decrease. This is largely because the butcher shops and green grocers have located in all sections of the city and are thus much more easily reached. Many thousands continue to patronize the markets because there they can always get fresh fruits, and usually at somewhat lower prices, but few go there for meats, although the prices of these are somewhat lower, but the convenience of the nearby shop and prompt delivery seem to outweigh this. Most of the butcher business in Union

Market is a wholesale one, the wholesalers having found it cheaper to rent space here than an equal amount in privately owned buildings.

SOULARD MARKET

The Soulard Market, formerly an important one, was never very well equipped. It originated as a private market on public ground donated by Julia C. Soulard in 1833, and was later purchased by the city for \$25,000. Very little has been done to it since then. It is the least sanitary of the city markets and the least remunerative. But four stalls are now rented, and these



SOULARD MARKET, SEVENTH STREET ENTRANCE

Wagon shed at left.

do not have an attractive appearance. The walls and ceilings of the market buildings and underside of the roof of the wagon shed appear not to have been cleaned for many years. The market comprises two buildings, each 32 by 60 feet, placed end to end and separated by a brick-paved passage which permits traffic to cross the lot to the wagon shed south of the buildings. Both buildings are of brick with metal roofs. The one facing Seventh street, in which is the main entrance, contained a middle passage with stalls on each side, the division between which is indicated by a number of wooden box posts extending from the floor to the ceiling. On either side of the entrance are dilapidated stalls, which bear no indication of recent use, and there is only one occupied stall, at the rear end. This building has a brick floor; the other, one of granitoid, with brick walks. These are kept fairly clean by flushing. The rear building is occupied by one tenant, having two stalls, the remainder of the big room being entirely vacant. The only refrigeration used by these two tenants is an ice box which holds all the meats and other perishable goods.

This market derives most of its revenue from farmers who occupy Soulard Market place, an extension of the market grounds occupying one block, for which from 5 to 10 cents a day per wagon stand is charged. The market place is vacant except on market days—Tuesdays, Thursdays and Saturdays. The wagon shed above referred to, which extends along the south side of the market buildings, is used as a shelter in threatening weather. It is constructed entirely of steel posts, trusses and supporting rafters, wood being used only for the sheathing and a few of the rafters. It will accommodate about 75 wagons



SOULARD MARKET—INTERIOR OF FRONT BUILDING



SOUTH ST. LOUIS MARKET

standing in pairs end to end and with three feet between vehicles.

It is probable that this market would be abandoned but for a provision of the deed by which the city will forfeit it if used for any other purpose. It costs the city an average of about \$1,500 a year, and gives a return of a little more than one-half of that, including the wagon stands, but not including the weighing scale tickets. (A public scale is operated in connection with the market.) The market master, who is also public weigher, receives \$60 a month and a sweeper \$10 a week.

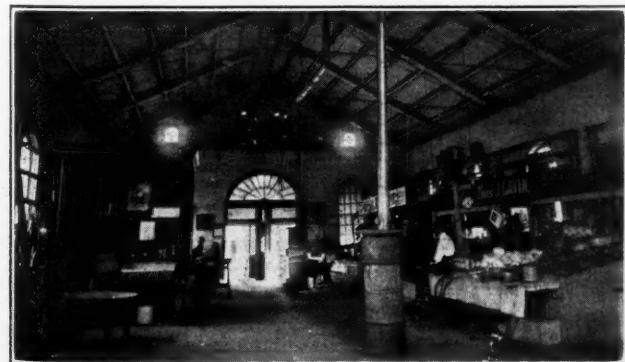
There is now being considered a minor municipal center adjoining this market, consisting of a public park, facing which will be a new branch library of pleasing design, a public bath and swimming pool in a building with a white glazed front, and a police station and engine house.

SOUTH ST. LOUIS MARKET

South St. Louis Market is located in the northeast corner of South St. Louis square, a small public park. The building is about 30 by 50 feet, constructed of brick with granitoid floor. There are no partitions, but a heavy wooden frame work on the wall serves for both a meat rack and as a dividing line for

Maintenance and Operating Expenses

MARKETS	1902	1903	1904	1905	1906	1907	1908	1909
UNION MARKET:								
Salaries of Market Masters and Sweepers.....	\$3,399.96	\$3,399.96	\$3,399.96	\$3,399.96	\$3,399.96	\$3,399.96	\$3,399.96	\$3,349.96
Expenses, Fuel, Ice, Supplies and Advertising.....	729.72	957.13	667.42	1,180.23	2,723.47	880.44	1,943.70	429.25
Repairing and Improvements.....								5,139.60
Total Union Market.....	\$4,129.68	\$4,357.09	\$4,067.38	\$4,580.19	\$6,123.43	\$4,280.40	\$5,343.66	\$8,918.81
SOULARD MARKET:								
Salaries of Market Masters and Sweepers.....	\$1,219.92	\$1,219.92	\$1,219.92	\$1,202.51	\$1,219.92	\$1,219.92	\$1,219.92	\$1,219.92
Expenses, Supplies and Repairing.....	96.75	244.96	134.96	200.20	1,502.98	120.39	498.39	231.49
Total Soulard Market.....	\$1,316.67	\$1,464.88	\$1,354.88	\$1,402.71	\$2,722.90	\$1,340.31	\$1,718.31	\$1,451.41
SOUTH ST. LOUIS MARKET:								
Salaries of Market Master and Sweepers.....	\$1,219.92	\$1,219.92	\$1,219.92	\$1,219.92	\$1,219.92	\$1,219.92	\$1,219.92	\$1,219.92
Expenses, Supplies and Repairing.....	9.00	16.80	661.90	133.50	502.02	85.75	10.09	195.99
Total South St. Louis Market.....	\$1,228.92	\$1,236.72	\$1,881.82	\$1,353.42	\$1,721.94	\$1,305.67	\$1,230.01	\$1,415.91
Total Markets.....	\$6,675.27	\$7,058.69	\$7,304.08	\$7,336.32	\$10,568.27	\$6,926.38	\$8,291.98	\$11,786.13



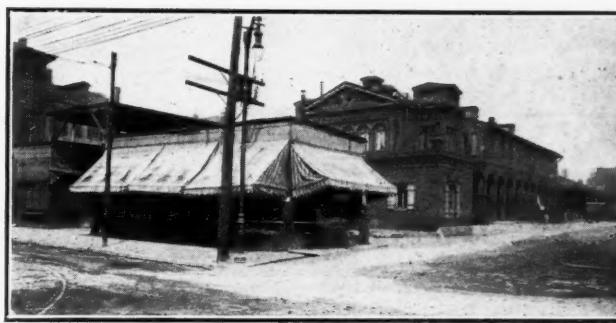
INTERIOR OF SOUTH ST. LOUIS MARKET

Granitoid floor. Three deserted stalls on left.

the stalls. The building contains twelve stalls, nine of which are rented, but the rents are so low as to total only one-half the expense of maintaining the market. As in the case of the Soulard Market, two men are employed, the market master being also public weigher at the scales located at the market. As at the Soulard Market, his office is in the tiny scale house. This market has no wagon stand, and wagons are not allowed to compete with the market men. The building is valued at \$5,000 and the ground at \$3,000. The drainage consists of a single pipe leading to the street sewer, which carries off the flush water. There is but one butcher in this market, who occupies three stalls, one of which is given over to an ice-cooled refrigerator.

BIDDLE MARKET

Of several private markets previously existing, only one, the Biddle, remains in business. On this there has been spent in the past fifty years a total of \$28,500, on which it is said to still pay more than 6 per cent interest. The city owns the land,



BIDDLE MARKET. OPEN STALLS ON NEAR CORNER

Weigh house between market and stalls. Most stalls in use are in frame extension at right background

which was donated to it by a Mrs. Biddle more than sixty years ago, and can take over the market at any time on payment of a value to be assessed by appraisers. This market, which is in the tenement district, comprises a main building, a

of St. Louis Markets for Eight Years

long double wooden shed coming together in the middle to form a partially covered passage way, and stalls along the outside walls. The main building is of brick, with brick floors and metal roof. It has not sufficient light or ventilation, and is occupied by only two butchers, who use artificial light in the daytime. The stalls outside the building are all rented, but neither these nor the building itself are kept in a clean and sanitary condition, it being claimed that the profits are too small to permit the employment of help necessary for this or the repairs which would make it possible.

An outdoor market was once held in the middle of Twelfth street, which is more than 100 feet wide and four blocks long, but there has been no market here for fifteen years. There were also the Harney Market, West Market, Mound Market and half a dozen others, all no longer existing.

Besides the several markets, the city permits market wagons to stand in Third street from Lucas avenue to O'Fallon—half

a mile—where it runs into Broadway. This affords room for several hundred wagons, and no charge is permitted, either by the city or by owners of adjoining property. This has been provided for by city ordinance for more than half a century, and is now a more important market place than any of the public markets, with the possible exception of the Union. It is doubtful if any market wagon could be induced to give up Third street for a place in front of the market, which is two blocks distant. It is certain that few have done so, for it costs a few cents a day for stand privileges around Union Market.

The table on page 615, taken from the city comptroller's last annual report, shows the maintenance and operating expense of each market for eight years back.

For the fiscal year ending April 12, 1909, the Union Market paid \$38,905.85 in rents; Soulard Market, \$468, and the South Market, \$102. The figures for the two latter markets do not include the revenue from the two public scales in connection.

CONCRETE SEWERS IN LOUISVILLE

In a recent report covering the construction to January 1, 1910, of the Louisville, Ky., \$5,000,000 sewer system, Chief Engineer J. B. F. Breed states the reasons which influenced the adoption of concrete for the large sewers, and some of the general principles followed in the design. This part of his report is as follows:

Very careful consideration has been given to the selection of the kind of masonry to be used in the construction of the sewers and drains. The size of a sewer depends to some extent upon the smoothness of its interior surface, and because of the smooth finish which can be obtained with the use of concrete, this material is particularly favorable for this class of structures. A further argument in favor of the use of concrete is the fact that it is much less expensive per cubic yard than brick or stone masonry. It is also possible because of the practicability of building monolithic structures to vary the thickness of the walls in a way which cannot be done with brick or stone masonry because of the fixed dimensions of the blocks, and thus reduce slightly the thickness where not required and increase it where needed. In this way an additional reduction in expense is effected by reducing the quantity of masonry required per linear foot.

The only serious danger in the use of concrete is that it may be affected by acid in the sewage. Fresh sewage is normally alkaline, and practically the only source of acid is the waste liquids from manufacturing establishments. A careful examination was made of the sewage in various sewers about the city and of waste from many manufacturing establishments. As a result of these investigations, it was decided that it was perfectly safe to use concrete in the construction of the sewer system, and its use was therefore adopted.

In certain places where the velocity of flow in the sewers will be great the bottom or invert of the concrete sewers has been lined with vitrified brick masonry, at additional expense, on account of its superior wearing qualities, and the size has been increased to correspond with the increased roughness of the interior surface.

The concrete has been composed almost wholly of sand and gravel dredged from the Ohio River, although in some localities it has been possible to use sand from the trenches. The contract specifications do not permit the use of limestone as a constituent part of the concrete. The reason for excluding the use of limestone, which is very common and comparatively inexpensive in this locality, is that it cannot withstand the erosive action as well as the river gravel. Comparative tests of concrete containing river gravel and crushed limestone were made very early in the studies upon the sewer system and it was found that, while the concrete composed in part of river gravel would wear as well as, and in many cases better than, ordinary sewer brick, the concrete made of broken limestone would not withstand the abrasive tests nearly as well. Some gravel has been obtained from the sewer trenches which was of proper size for use in the concrete, but it has been found to consist very largely of limestone, and in many cases the limestone pebbles were so soft and friable that they could be broken between the fingers and many were also partially disintegrated. For these reasons it has been necessary to exclude the use of gravel from the trenches.

The minimum thickness of concrete used upon the sewers and drains is 5 inches at the crown of the arch and 6 inches in the center of the invert. In reinforced structures the steel reinforcement is required to be at least $1\frac{1}{2}$ inches, but is rarely more than 2 inches from the surface of the concrete. Plain concrete has been used in sizes up to and including 66 inches, and reinforced concrete in structures as small as 39 inches in diameter, the decision as to which material should be used depending upon the foundations, depth of cut, convenience in placing and other local conditions.

SAND FILTERS AND DISEASE GERMS

The Passage of Pathogenic Bacteria Through Sand Filters
—May Actually Increase Within Them—Removal
Due to Surface Attraction

By RUDOLPH HERING

WHEN in Europe two years ago my attention was called to some facts relating to the efficiency of sand filters for water purification in removing pathogenic bacteria, and a number of German articles were mentioned which contained experimental results relating thereto.

A water supply engineer stands between the taxpayer, whose money he is to expend, and the chemist and bacteriologist, whose opinions and results he must accept in his desire to furnish the taxpayer with the best water at the least cost.

When chemists and bacteriologists differ among themselves, the engineer, being compelled to assume a basis for his work, must use and act upon his own judgment and himself decide what basis he will use.

In a recent report I inserted the three paragraphs quoted below, because it appeared to me that the evidence from various quarters harmonized sufficiently to require the engineer to take note of the possibility under some conditions of propagating pathogenic bacteria within filters.

I was well aware of the consequences of such a statement, but as it could be coupled with another statement that a hypochlorite treatment efficiently and very economically destroys pathogenic bacteria before or after the water is passed through filters, there should be no disturbance whatever of public confidence in their use. Moreover, we can never nullify facts by ignoring them, and the sooner we recognize them and find means of correcting them, the better will be the result. The paragraphs referred to were as follows:

Report on an Improved Water Supply for the City of Minneapolis, Minn. By Rudolph Hering, March 17, 1910

The longevity of typhoid bacilli is quite variable. If placed in distilled water their life is very short; when placed in polluted water or sewage, unless destroyed by other bacteria, it is much longer; and when enclosed in minute lumps of fecal matter, their life may continue indefinitely. It may continue for years, as typhoid bacilli have been found in a vigorous condition in privies that have received feces from typhoid patients two or three years before.

In the autumn of 1909 experiments were made in the rate of growth of typhoid bacilli in the water of Mille Lacs lake, and in the highly colored and highly nitrogenous water of its tributaries. The samples were taken on Aug. 25, and were sown, by Dr. Corbett, with 8,000 typhoid bacilli. On Aug. 27, after two days, the lake sample contained about 2,000,000 bacilli, and the sample of the affluents about 3,000,000 bacilli. On Aug. 31 these amounts were reduced to about 165,000 and 1,500,000, respectively, and on Sept. 3 to about 2,000 and 500,000 respectively. The water in the tributaries contained more dissolved organic matter than the lake, and this food material may be the cause of the greater development of the bacteria therein. This experiment further showed to what extent lake water might be a suitable culture medium for typhoid bacilli.

It has been demonstrated elsewhere that typhoid bacilli will multiply in and pass through water filters, if these contain sufficient nutriment in solution and provide other conditions for their propagation, and that they will not pass through the filter if such conditions do not exist.

It has appeared to me that a somewhat more specific statement might be desirable in the circle of those whose profession brings them in contact with questions relating to water supplies, and I therefore send you the following remarks, which constitute some of the evidence upon which the engineer, as juror, should form his judgment.

In the water supply for a community we should take no chances. We must give the innocent members of it the benefit of every doubt and place their water supply above suspicion. And if there is an actual assertion of facts, repeated in quite different quarters, although opposed in some others, the engi-

neer can do nothing else but guard his works even against possible defects so that no harm may be done in either case.

For a number of years sanitarians have endeavored to ascertain how objectionable bacteria are destroyed by filters. Although Massachusetts, England and France have done a large amount of excellent work in throwing light upon this subject, Germany has also been active. As we are generally better acquainted with the results in the first-mentioned countries, it may not be out of place at this time to call attention to some of the work that has been done in the last-mentioned one.

As already pointed out by Hazen, the experiments of Fränkel and Piefke¹ in 1890 indicated the fundamentals of water purification by sand filters. They proved that not alone sand in mass may hold back bacteria, but that their retention is chiefly accomplished by the superficial cover over the sand, consisting of very fine particles of mud and dead organic matter. (Schmutzhaut, Schmutzdecke, Schlammsschicht.) They further proved that the velocity of filtration should not be over 100 mm. per hour if bacteria were to be held back. They also found that the beginning and ending of a run were the dangerous times.

Filters becoming old permit bacteria to grow and increase within them² because sufficient nutriment accumulates in the pores to encourage their multiplication.³ Germany has recorded more investigations than other countries regarding house filters (KleinfILTER), for small quantities of water, and they have materially assisted in throwing light upon the general subject.

W. Hesse⁴ in 1885 experimented with sand, animal charcoal, compressed asbestos, cotton and cellulose. The latter two materials gave poor results, as bacteria came through very freely. Animal charcoal did better, as at least for the first two days no bacteria were in the effluent. Among those four materials asbestos gave the best results. The bacteria which passed through the filters were not always the smallest ones. In fact, the latter were generally retained by adhesion. The larger bacteria, or those having active motile powers, generally passed through. Hesse found that some of the materials, including the sand of sand filters, sometimes caused a greater number of bacteria to be in the effluent than were in the influent.

Plagge⁵ in 1886 found that after eight days some common asbestos house filters passed from 100 to 1,000 times the number of bacteria that were in the influent. Kubler⁶ in 1890 found that after eight days even a Pasteur-Chamberlain filter, if not cleaned, could deliver more bacteria into the effluent than were in the raw water.

W. Pfeffer^{7, 8} tested the sensibility of bacteria resulting from chemical stimulants, particularly as to their powers of locomotion and chemotactic movements.

Hesse⁹ and Chlopin and Tamman¹⁰ in 1903 proved by experiments that bacteria become less active the greater the water pressure under which they operate, but that pressures of even 500 atmospheres apparently did not destroy them.

Kirchner¹¹ in 1893 added typhoid and cholera bacilli with bouillon to the water passed through a filter, and, finding them in the effluent, therefore condemned all filters. Gruber¹² in 1893 and Schöfer¹³ in 1893 opposed this somewhat radical view and demonstrated that the penetration (Durchwachsen) of typhoid and cholera bacilli occurred only when the water contained sufficient dissolved organic matter (Nährlösung). They maintained further that the demand for nutriment differed considerably between pathogenic and common water bacteria.

Gruber proved that water bacteria find conditions for their propagation in the pores of filters even when fairly good river water is filtered, which has also been observed elsewhere. He further found that such water is too poor a nutriment (viel zu schlechte Nährflüssigkeit) for typhoid and cholera germs, and asserts that their propagation in such water is "impossible." The conclusion now pretty generally accepted is that typhoid bacilli gradually and sometimes rapidly die and dis-

appear in unpolluted river waters, and even in some polluted waters (U. S. Supreme Court decision in Chicago Drainage Canal Case). This view is held and acted upon in many cities in both Europe and America.

Schöfer's experiments with typhoid and cholera bacilli were first made with water that was sterile when turned upon the filter. Then no bacilli appeared in the effluent. But as soon as he added dissolved organic matter, these bacilli appeared because conditions were offered for propagation. When the organic matter was washed out and the water was once more sterile, the bacilli again disappeared.

Schöfer also showed that the temperature had much to do with the passage of bacteria. In room temperature they appeared in the effluent within a few days. When they were applied with cold water their first appearance was not until after several weeks.

Lübbert¹⁴ in 1891 anticipated some of the above statements in showing that pathogenic bacilli did not pass through filters when the applied river water was fairly good and contained but little dissolved organic matter.

Hofstädter¹⁵ in 1905 conducted an interesting series of experiments to determine the conditions of penetration of bacteria into and through fine capillaries. He selected pure cultures of species which easily multiply and could be readily detected. They were chiefly *B. prodigiosus*, *B. fluorescens* longus, hay bacilli and yellow and orange cocci. The capillary tubes ranged from about 0.001 to 0.01 mm. in diameter, therefore exceedingly small. Great care was taken to get definite, clear and reliable results. A special make of glass was used, and after sufficient practice with an assistant, the tubes were carefully drawn, so that they were both sterile and of desired diameter, the latter being accurately determined.

The main conclusions were:

The time required for the bacteria to enter or penetrate the capillaries was found to depend greatly upon the particular kind of bacteria, upon their size and motility, and upon the diameter of the capillary tubes.

The penetration of bacteria into fine capillaries containing nutriment was limited only by the diameter of the tube, and did not vary much with the size of the bacteria smaller than the diameter.

A penetration into capillaries filled with liquid nutriment did not take place if their diameters were less than 0.0016 to 0.0019 mm., but was considerable if the diameters were over 0.005 mm.

A penetration in the capillaries without liquid nutriment did not take place with diameters less than 0.0016 to 0.0023 mm.

Under a pressure up to three atmospheres bacteria would not enter capillaries into which they would not have themselves entered without pressure.

The above results confirm the view, now pretty generally held by engineers, at least in Europe, that the removal of bacteria from water or sewage while passing through a sand filter is not caused wholly by a screening effect when passing through fine pores or even through a slimy film consisting of minute capillaries, but also and perhaps chiefly by surface attraction. In large-grained sewage filters the latter is clearly the case, and surface attraction is not only the chief but probably the sole cause of removal of the fine suspended and colloidal matters from sewage which is accomplished by the use of the Dibden and Travis plates.

The general conclusion which the water supply engineer must draw from these and many other results is that properly devised and operated sand filters, when the raw water is not much polluted, will safely remove pathogenic bacteria. There appears to be sufficient evidence, however, that with a sufficient quantity of nutriment dissolved in the water, pathogenic bacteria not only pass through filters, but that their number may actually increase within them. With these facts in mind, double filtration was proposed as a safeguard, and has been practiced in Altona and Bremen, in Germany, for a number of years.

¹ For these and other authorities referred to, see list at end of this article.

The engineer must, therefore, be on his guard when advising sand filters for domestic consumption, and still more so when advising filters for the purification of sewage, as they receive a large amount of dissolved bacterial nutrient, which may cause pathogenic bacteria to be nurtured and propagated in filters. He must also take account of the fact that screened or settled sewage, when discharged into and sufficiently diluted by unpolluted waters, or water containing a small amount of organic matter in solution, will, on the other hand, cause pathogenic matter to be deprived of favorable conditions for life and therefore to perish.

Fortunately, we have now a remedy against the danger of escaping pathogenic bacteria by their direct destruction with hypochlorite of calcium and sodium, which can be economically applied in connection with the filtration of water supplies, and also for sewage purification after the suspensoid organic matter has been substantially removed by filters or otherwise.

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ASSESSING FOR STREET PAVING

A METHOD of assessing for street paving which seems to be an improvement on that used in many cities (although we believe that several have already adopted practically the same plan) has received the approval of the several Borough Presidents and engineers and the Board of Estimate and Apportionment of Greater New York, and has been embodied in a bill now before the New York State Legislature. The general idea is that of requiring the property owner to pay ultimately for a so-called "permanent pavement" in front of his property, but not requiring him to pay more than the cost of such pavement.

A practice which is not as common as it was some years ago is still in use in some cities of requiring each property owner to pay for but one road improvement in front of his property, whether that be a macadam or permanent pavement. In a few cities the owner pays for all pavements, whether the street be paved once or a number of times. Either of these works an injustice. According to the plan proposed for New York pavements, they are to be divided into two classes. Class A will include sheet asphalt, asphalt block, wood block, granite block or such other permanent pavements as shall from time to time be designated for that class by the Board of Estimate and Apportionment. Class B will include macadam, bituminous macadam or other of the less costly pavements. An owner who has once paid for a Class A pavement in front of his property would never again be called upon for any pavement assessments. Should an owner have paid for a Class B pavement, and a Class A pavement be later laid to replace this, his assessment would be the cost of the Class A pavement less the amount previously paid by this property for the Class B pavement. Should a Class B pavement at any time need renewal,

the owner may petition that it be renewed by another Class B pavement rather than a Class A, and such renewal may be granted or not by the authorities having control over the pavements; but in such case, when a Class A pavement is ultimately laid, the amount deducted from the assessment therefor would be the cost of the original Class B pavement only, no account being taken of the second Class B pavement.

This method differs from the one suggested by us a few weeks ago, in that it requires each property owner in the end to pay for a pavement of the highest price, whereas our suggestion was that each property pay for a Class B pavement only, whether such a pavement be laid originally or whether a Class A pavement be laid in the first instance, the city at large paying the balance of the cost. Either method, however, tends to remove an injustice which is inherent in most other methods; which inequitable methods should, in our opinion, be superseded by one similar to those referred to.

LICENSING CIVIL ENGINEERS

At a meeting of the American Society of Civil Engineers on April 6 there was discussed at some length the subject of legislation requiring the licensing of civil engineers, the immediate occasion for which was the introduction of such a bill in the Assembly of New York State. The President was authorized to appoint a committee of five to report upon this subject at the next annual convention, and this committee, composed of Messrs. John H. Bensel, Wm. H. Burr, James Owen, George W. Tillson and Chas. Warren Hunt, the secretary of the society, were appointed. They have issued a circular requesting that all members of the society (and we presume that they would be glad to include others also) send them any information which they have upon the subject, especially information concerning the text of any State or other statutes affecting in any way the right of an engineer to practice. If any of our readers have any such information we hope they will send the same to Secretary Hunt, at 220 West Fifty-seventh street, New York. This, whether they are or are not in favor of licensing, since we understand the committee is desirous of obtaining the greatest amount of evidence on both sides of this question and neither it nor the society has committed itself either for or against such legislation.

UNAUTHORIZED USE OF SOCIETIES' NAMES

NUMEROUS lecture bureaus, societies, etc., have doubtless received copies of a leaflet, one of which has reached our hands, advertising the "International Lecture Institute," of New York City. This gives a "list of Cities and Towns where the Institute has Affiliated Societies for the Delivery of Lectures"; also a list of about 150 "Affiliated Societies," which includes the American Academy of Medicine, Master Car and Locomotive Painters' Association, Architectural Institute of Canada, etc. The inference apparently intended to be drawn is that these societies have used or endorsed the Institute. Possibly some have, but we have the authority of the secretaries of two of those named, the American Water Works Association and the American Society of Municipal Improvements, that no authority has ever been given for any use of the names of these societies; and we have less positive assurance that the same is true of several others. In behalf of these societies we desire to notify societies and clubs generally of this unauthorized use of their names.

CONFERENCE ON CITY PLANNING

We desire to again remind our readers of the second National Conference on City Planning and Congestion, which is to be held in Rochester, N. Y., May 2, 3 and 4. Information concerning the aim of this conference was given in our issue of March 30. Those who are intending to be present are urged to write to the secretary, Mr. Flavel Shurtleff, 19 Congress Street, Boston, Mass., immediately, stating when they expect to arrive in the city.

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APRIL 27, 1910.

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Municipal Market Buildings

THERE seems to have been an unusual amount of interest among many of our readers during the past year in the subject of municipal market buildings, if we can judge by the number of inquiries which have reached us for information concerning the same, the number of these inquiries perhaps exceeding those concerning any other one municipal matter. The amount of literature on this subject, however, seems to be very scanty. In consequence of this we are endeavoring to collect information concerning the municipal market buildings in a number of cities, and are expecting to publish at intervals a series of descriptions of these.

The number of municipal markets in the country is greater than is perhaps realized, especially in the north, public markets seeming to be more numerous in the southern states. The latest Census report groups municipal markets and public scales in one item, but if we assume that where the value of these in any given city is \$5,000 or more it includes one or more market buildings, we find 59 cities apparently owning such buildings or land devoted to market purposes. The total valuation of the markets and public scales for the entire country is given as

\$22,500,000, the receipts from the same as about \$1,377,000, and the expenses as \$482,000, together with \$314,000 of outlay upon the same.

A considerable number of the municipal market buildings are quite old, many of them dating back fifty years or more, but in some cities new and modern markets, with the latest methods of drainage and ventilation, and brine or cold-air refrigeration, have been and are being constructed. We present in this issue a description of the markets of St. Louis, which in many ways are not particularly modern, but are perhaps typical of both the more and the less successful of the older markets. We have already arranged for descriptions of the municipal markets in a number of cities, but will be glad to receive additional descriptions of any others which our readers may be able to furnish.

Sidewalks and Roadways

WHY the sidewalk of a street should be considered and treated by municipalities differently from the roadway is a question which has been suggested to us by several recent occurrences. The sidewalk is used by the public fully as much as is the roadway. Its uniformity and general appearance are as important elements of the beauty and symmetry of the street. Why, therefore, should not the city construct the sidewalk as it does the roadway pavement, deciding, through its city engineer or street committee, what material should be used and paying or assessing the cost in the same way? There appears to us to be so many arguments in favor of this and so few against it (except the powerful one of custom) that we wonder that it has not been adopted by the majority of cities.

A number of cities assist the property owner in obtaining contracts for sidewalk construction at reasonable prices by arranging with contractors for all the sidewalk work which is to be done during a given year, and some have adopted specifications and an ordinance requiring all sidewalk contractors to build sidewalks according to these specifications, and in some cases require them to furnish a bond that such sidewalks will prove themselves by wear and wintering to have been properly laid.

These all seem to us to be unconscious admissions that the construction of the sidewalk by the property owner is not the most desirable plan. One reason for this is that the owner knows little or nothing about concrete work, and has not the time to see that the contractor does it properly, and must consequently rely entirely upon the contractor's skill and honesty, which is in many cases too much of a temptation to slight the work. In other cases the owner is ordered by the city to build the sidewalk and endeavors to get out of it in the cheapest way possible by building the least expensive walk which he can get a contractor to lay. Another objection is the piecemeal way in which the sidewalks are generally laid, those in front of adjacent properties frequently being laid by different contractors, at different times, with different materials, and sometimes even at different grades. The very fact that most cities exercise their authority to compel property owners to put in sidewalks and curbs is a proof of the interest which the public has in the sidewalk and of the fact that it is for public rather than for private use.

For all these reasons, and others which could be cited, it seems strange to us that, while it is the universal custom for cities to pave the roadways, generally at least a block at a time, and in many cases to charge this up to the property owners, either in whole or in part, the same practice does not seem to have obtained in any considerable number of cities in connection with sidewalk paving. An increasing number of cities have taken over the control of the shade trees, certain states having given all the cities therein power to have and exercise such authority, and it now remains only for the city to assume complete authority over the sidewalks to place the construction and maintenance of the entire street from property line to property line where it belongs—in the charge of the municipality.

ST. LOUIS GARBAGE REDUCTION PLANT

THE garbage reduction system of St. Louis, which was described by us in our issue of October 13, 1909, has given considerable trouble because of the inability of the plant to handle the amount collected. About 5,400 tons of garbage has been strewn along the main line tracks of the railroad over which the garbage cars are hauled to the plant, and the odor therefrom has aroused the citizens of St. Charles and the Missouri State Board of Health to an endeavor to compel the company to abate the nuisance. The St. Louis Board of Public Improvements has taken up the complaints with the company, which has expressed its willingness to do anything in their power. During the last week in March conditions became so intolerable that the Board directed the company to bury the garbage above referred to under three feet of earth, after mixing it with 1,800 tons of lime, the cost of which to the company was estimated at between \$2 and \$3 a ton. The plan outlined by the city's chief sanitary officer and those of St. Charles and the State Board of Health was to spread the garbage on the ground in layers one foot deep, with three inches of lime and six inches of ashes or earth over each layer, the entire pile to be covered with three feet of earth. The officials estimated that there was enough garbage to cover five acres one foot thick, or one acre with five one-foot layers. Something like 40 to 50 carloads of lime and 165,000 cubic feet of earth were needed to cover the garbage. The company was ordered to do this work within ten days, and immediately put a gang of 24 men at it, under the oversight of a city sanitary inspector.

This garbage had accumulated through inability of the reduction plant to handle it. Several weeks ago the garbage company, which had been having a great deal of trouble with the drying machinery, decided to replace it with machinery in successful use elsewhere, and is installing a drying equipment similar to that used in Buffalo and a few other cities. While the change was being made part of the plant was out of service, and not all of the garbage sent to the plant could be handled. As there is a penalty clause of \$10 a ton for failure to accept garbage offered by the city, the company piled it on the ground. During the cold weather this practice gave little offense, but the intention of the company to have this garbage put through the plant before warm weather was not realized, with the result above described.

According to the president of the company, Mr. Lawrence B. Pierce, the plant is now in shape to handle all the garbage furnished by the city, but has not yet the capacity to handle any of the accumulated garbage. The present capacity, however, will be about doubled when all of the new drying machines, nine in number, have been installed, which will provide for the largest amounts expected during the summer. In addition to replacing the drying machines, the company has replaced the whole working management of the plant by men who have become expert through service in successful plants elsewhere.

In March the garbage amounted to 2,628 tons, 142 tons more than in March, 1909. The cost to the city of disposing of it, including the 27 cents a ton paid to the company, and the salaries of garbage weighers and a foreman, was \$1,498 this year, or 56 cents a ton, against \$3,001 or \$1.10 per ton for March, 1909. The present contract was in effect for part of March, 1909, but the old system was maintained for a few months to provide against the possible failure of the new plant. The amount of garbage is now about one-third of what it will be during the summer months.

City officials estimate that the company is deriving a gross revenue from the garbage of about \$100,000 a year for grease, \$38,000 for tankage (which is used as a fertilizer base), together with the payment by the city of 27 cents a ton, which amounts to about \$13,500 a year; the whole totaling a little over \$150,000. This is based on an estimated grease extraction of 2½ per cent. of the weight of the garbage and a price of 4 cents a pound received for this. (Market quotations were

found from 4½ to 8½ cents per pound.) It is believed that 19 per cent. of the gross tonnage of the garbage is available as fertilizing base, which is said to sell at \$4 a ton f.o.b. at the plant. These figures were not furnished by the company, which gives information of this kind to its stockholders only, but is an estimate made by the city officials who have supervision over the company's work.

MERCHANDISE ON SIDEWALKS

IN most of our large cities, in the business and especially in the wholesale sections, merchants make a practice of receiving and dispatching goods, of backing drays and of piling merchandise in crates and other forms upon the sidewalk until the use of it by pedestrians becomes practically impossible. Probably in the last analysis the merchants have no right to make any such use whatever of the sidewalk, or to occupy any space thereon except by goods actually in motion between the building and a vehicle at the curb. To insist upon this, however, would in many cases entail considerable expense upon the merchant, possibly even compelling him to provide a court within the building line and a driveway through the building leading thereto, in which court the loading and unloading could take place. It is probable that were this generally required throughout a city the added cost would simply be passed on to the consumer; and it becomes a question which must be decided by the police or other municipal department just how far the pedestrian should yield his rights to the sidewalk to permit of a saving of cost to the merchant and secondarily to the consumer. In most, if not all, cities it has been a practice to concede to merchants certain privileges in the way of occupying sidewalks with packing cases and other temporary obstacles.

The city charter of the city of New York provides that "It shall be the duty of the Commissioner of Street Cleaning to remove or cause to be removed all boxes, barrels, bales, or merchandise and other movable property found upon any public place or street." The corporation counsel in 1908 advised that this applied to the sidewalk as well as to the roadway. The Commissioner thereupon forbade the placing of any merchandise upon the sidewalks under any circumstances except during the actual process of moving across. This gave rise to an immediate and pronounced protest on the part of many of the merchants and the Commissioner finally consented to a modification of his order, defining his position as follows:

While the law is explicit and the authority of the Commissioner of Street Cleaning thus clearly defined, it is not the purpose of the Department to prevent or interfere with the carrying on of private business, but on the contrary to facilitate it in every way possible. In all cases where the spirit of the law is complied with and the sidewalk only used for packing cases in actual transit from the building to trucks ready to receive them, or from the trucks into building, no seizures will be made; but if in disregard of the public convenience a practical appropriation of the sidewalk is made for the purpose of storing or packing such boxes or merchandise in transit on such parts of the sidewalk as are needed for the passage of pedestrians, then the obstructions will be seized and removed under the law.

The portion of the sidewalk between the stoop line and the building not being usually needed for the passage of pedestrians, merchandise in transit may be placed thereon during the business hours, provided it shall not be kept there over night. All merchandise which it is not intended to immediately place either within the building or upon trucks may be kept within the above space.

In addition to the merchandise kept within the stoop line, a single row of cases in actual transit may be placed at the curb line; provided, however, that such cases are not placed so as to interfere in any instance with the maintenance of adequate passageway for pedestrians. In crowded thoroughfares (to be specified by the Commissioner), or wherever the full width of the sidewalk is necessary for pedestrians, cases will not be allowed at the curb line.

This rule has been quite generally enforced, and when once understood by the merchants was, with very few exceptions, cheerfully complied with.

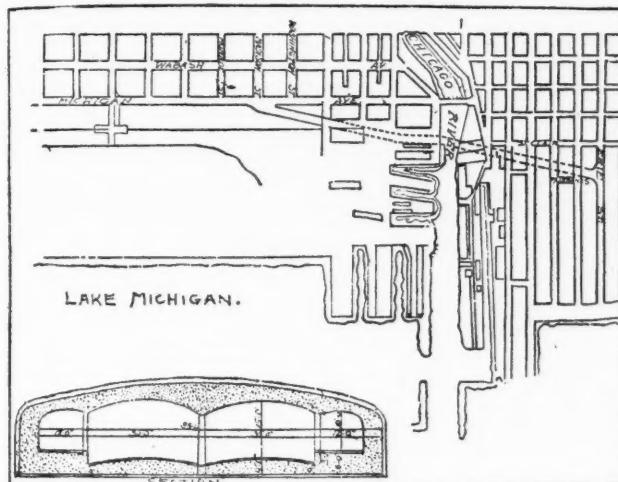
NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest, Under Consideration by City Councils and Department Heads—Streets, Water Works, Lighting and Sanitary Matters—Police and Fire Items—Government and Finance

ROADS AND PAVEMENTS

Jackson Tunnel Plan Complete

Chicago, Ill.—The George W. Jackson plan to supply the "missing link" in the Chicago boulevard system has been worked out in detail and is ready to be submitted to city officials. The tunnel would begin at Michigan avenue, near Madison



PROPOSED UNDERGROUND STREET CONNECTING NORTH AND SOUTH SIDES, CHICAGO.

street, and run slightly east of north, ending on the north side at East Erie street, east of St. Clair street. The entire length of the underground subway is put at about twelve city blocks, which would necessitate only a slight grade throughout. The interior of the tunnel is designed in three sections. There are two adjoining roads in the center to accommodate traffic in both directions, and at either side there are smaller tunnels for pedestrians.

Assess Out-of-Town Property for Street Pavement

Columbus, Ga.—The city of Columbus is to take the unique step of assessing out-of-town property for public improvements, and in the opinion of the City Attorney, T. T. Miller, it stands a very excellent chance of making the collection, even if the foreign property holders should object. The legislature of Georgia has adopted a local act giving the city of Columbus the right to pave all streets within the city limits and to assess two-thirds of the cost of such work on the abutting property owners on either side of the street. Council has passed an ordinance providing for the paving of Sixteenth street between certain avenues and the cost is assessed in the usual manner, one-third against the property on one side and one-third against property on the other side. While the street is in the city its entire width, yet the property on one side is outside the city limits. The street complies with the legislative condition, however, being within the limits, and so the city authorities are going right ahead making the assessment just as if the thoroughfare was in the heart of the town.

Object to Combination Curb and Gutter

Omaha, Neb.—The City Engineer's office has considerable fault to find with promoters who have combination curb and gutter specified for streets on which brick pavement is to be laid. The objection made by the engineers is that, while the combination curb and gutter is all right where asphalt is to be laid down, it is all wrong where brick is to be laid. The gutter and the brick do not match up properly where they join and the engineer insists that the result will be bad. Two or three instances are now in hand where this mistake has been made and the City Engineer's office will have the change made.

Steel Reinforcement Tried to Prevent Cracking

Fond du Lac, Wis.—City Engineer J. S. McCullough in a communication to Council said that unless some provision be made in future specifications for cement streets to overcome cracking of the pavement he would not recommend building any more streets of that sort. The City Engineer goes on to say that, in his opinion, metallic reinforcement will be beneficial, and he advises that it be tried on Armory, Fifth and Sixth streets, for which the National Paving Company was the lowest bidder. The contractors are willing to have the city place the metal mesh in the pavement during the progress of its construction without any charge for the inconvenience.

Indianapolis Street Work in 1909

Indianapolis, Ind.—The annual report of the City Engineer, Blaine Miller, now being compiled for the year 1909, will show that improvements were completed as follows during the year:

4.09 miles asphalt pavements	\$176,928.94
.36 miles wooden block pavement.....	31,584.80
5.59 miles brick pavement	168,615.34
1.03 miles bitulithic pavement	37,203.43
1.22 miles gravel roadways	22,960.24
6.48 miles graded roadway and curb.....	61,065.67
16.20 miles cement walks	85,136.61
17.43 miles main sewers	408,024.37
11.55 miles local sewers	78,357.45

In addition to these figures, the city spent \$22,090 for the construction of three bridges. The City Engineer's report will also show that the city's area is 33.53 square miles, as compared with 32.70 square miles in 1908; that there are 176.57 miles of permanently improved streets and a total of 476.50 miles of streets, while the length of local and main sewers aggregates 253.23 miles.

Affidavits from Contractors

Indianapolis, Ind.—Because of numerous complaints made to the Board of Public Works by creditors and persons who act as surety for some of the smaller contractors of the city a new form of affidavit to be required of contractors who are not well known, after the completion of their contracts, has been adopted. It is the intention to protect the city against poor workmanship in street improvements, to protect the bondsmen of contractors and to insure good work. Contractors will be asked to swear to the following where the affidavits are required:

That the contractor has actual knowledge of the facts herein stated; that all work done under said contract and all materials used are of the character, quantity and quality required by the plans, drawings and specifications on which said contract was let, and that said work has been done in conformity to said contract and specifications, and according to the directions of said Board and the City Engineer, and that the said contractor has paid and discharged all bills for material and labor incurred in connection with said contract, and the said undersigned for and in behalf of said contractor hereby makes the statement under oath and set forth herein in order to induce the city of Indianapolis by its Board of Public Works to accept and approve of the work done under said contract, and further that said contractor has performed in every respect and has fully carried out in every provision of said contract with the city of Indianapolis.

Wood Block Strip with Concrete on Sides

Sioux City, Ia.—Concrete paving with a strip of creosoted block eight or ten feet wide in the middle may be favored by the City Council in order that owners of property abutting on resident streets may enjoy the benefits of paving without having to bear expensive paving costs. Councilman Jonathan W. Brown, Superintendent of Accounts and Finances, believes that before the city does any paving in the residence districts it should determine the sort of paving that shall be used on all the residence streets. It is proposed to start in the business district and work outward, paving the cross-streets and also main thoroughfares in the residence districts as soon as possible. Rock and the other ingredients are obtainable within easy access.



Courtesy San Antonio Express

PAVING ALAMO PLAZA, SAN ANTONIO, TEX.

Municipal Paving in San Antonio

San Antonio, Tex.—The Alamo Plaza has been paved with asphalt by the municipal forces. A railroad plant is used and the product is from 40 to 50 loads per day of two cubic yards each.

Sand-Asphalt Mixture Used on Roads

Newton, Mass.—Street Commissioner Ross is making experiments in many streets of the city with different dust-laying materials. An idea of his own is meeting with much success, and the result will be of interest to the highway departments in many other places. Coarse sand is heated and is mixed with heavy asphalt oil, also heated. This mixture, when spread, readily works into the surface of the roadway, making a lasting, dust-proof elastic highway of great benefit to automobile travel.

SEWERAGE AND SANITATION

Texas Board of Health Plans Sewerage Campaign

Austin, Tex.—President Brumby of the State Board of Health believes that every city and town in Texas should take steps to improve its sanitary conditions. He says that there is not a single city or town with the sewerage system that it should have; that complaints often reach his department about the inferior sewer systems, and that it is time that the people of Texas do better in a sanitary way. It was in connection with this matter that he announced his desire to retain a sanitary engineer who, as a State employee, would assist every city and town in the State in establishing an efficient sewerage system, and thus save them the expense of hiring a sanitary engineer themselves.

Storm Sewers Overtaxed

Dallas, Tex.—A fall of 1.67 inches of rain in less than two hours on April 12 did considerable damage. In thirty minutes the storm sewers were unable to carry away the water which poured into the gutters. In forty minutes the streets were covered and vehicles crossing Main street at Murphy rolled through water hub-deep. At the corner of Main and Poydras, in front of the American Exchange Bank Building, a fountain of water gushed up six or eight inches from between the bricks in the pavement. This was watched by scores, none of whom could account for it except on the theory that the storm sewer was filled to overflowing and the pressure was such as to send the water up through the interstices in the pavement. In several parts of the city bridges, culverts, gas and water mains were washed out.

Sewers Damaged by Storm

Bayonne, N. J.—Receiving basins of sewers in many parts of the city have caved in or been choked up as a result of the heavy storm of a week ago. In some places the water has formed into ponds extending for fifteen feet into the middle of the street and entirely covering crossings. There are also two dangerous washouts, caused by the torrents that drained down the street.

Card System for Sewer Connections

Pensacola, Fla.—For the purpose of systematically keeping check upon those property owners who have been served with notice to connect their premises with the sewer system, and also to keep check upon others who may be served and who will be served in the future, an excellent card system has been installed at the office of the Plumbing Inspector, and the names of all served, and the names of all to be served, will be alphabetically recorded from day to day. At the expiration of sixty days on any one or more than one, notice, to one or more than one, property owner, the names will be turned over to the Police Department, and action as defined in the ordinances will be taken by the Marshal. Notices which have been served in the past are all of record in the office of the Building and Plumbing Inspectors, and in a moment of search, any name may be pulled from the record. The file is arranged so that the city is divided into four divisions, and this also greatly facilitates the system. A name in any part of the city, therefore, may be taken from the file.

Agreement with Government Over Passaic Valley Sewer

Newark, N. J.—Another definite move toward the work of building the big intercepting sewer between Paterson and the outlet in New York Bay was taken when the Passaic Valley Sewerage Commissioners formally executed the stipulation which the Legislature recently authorized them to make with the Federal authorities. Unless something altogether unexpected occurs the contracts for the work will probably be awarded in the latter part of next July, and, it is thought, the task of excavating and building will be actually begun about September. It is calculated that the work, which will cost, according to the estimates, about \$12,250,000, will take about four years and that the sewer, which is to have a normal maximum capacity of 360,000,000 gallons a day, will be in operation in the latter part of 1914. It is figured by Engineers Harrison and Gregory that at that time the sewage will amount to about 100,000,000 gallons a day, and that in 1940 the total will reach about 240,000,000 gallons daily. When completed the sewer will be a little more than twenty-six miles in length. Of the twenty municipalities that will be benefited by the sewer, all but four have agreed to join in the work. These four places are Orange, East Orange, Montclair and Glen Ridge, and it is expected they will make contracts as parties to the improvement before the work of construction is actually started.

Cleanliness for Grocers and Barbers

Omaha, Neb.—As a part of the general campaign for a stricter regime of cleanliness and care in handling food stuffs, Councilman Kugel has introduced an ordinance to compel grocers to securely protect vegetables, fruits and other articles from dust, dogs and other contamination when exposed for sale on sidewalks. Said Councilman Kugel: "We have no general street sprinkling system in Omaha, and all over the city can be seen great piles of vegetables and fruits exposed to every wind that blows. They naturally must become covered and tainted with dust and dirt, if nothing worse. It is a condition that has been permitted too long, and if there is a way to stop it, now is the time to act, with summer coming on." An ordinance is being prepared by the City Attorney's office, at the instance of Councilman Kugel, that is intended to make the barber shops of Omaha sanitary and clean all the year round.

Prosecution Suggested to Prevent River Pollution

Yonkers, N. Y.—Health Officer Coons has received a second communication from State Health Commissioner Porter, stating that the Department of Public Works could put a stop to the practice of emptying sewage into the Nepperhan River by bringing action against the offenders. The Health Officer at once referred the communication to Public Works Commissioner Brady. In the first letter, which Health Officer Coons received, Commissioner Porter said that the only way he knew of keeping the Nepperhan free from contamination would be by properly policing the watershed. Early last week the Health Officer discovered that several foreign sewers were emptying sewage into the Nepperhan, and he immediately communicated with Dr. Porter for advice.

WATER SUPPLY

New Water Works Will Rejuvenate Town

Cortez, Col.—This town has just completed a fine water works system costing \$56,000. The water is brought from the adjacent snow-capped hills and is of exceptionally fine quality. The installation of the water works system is expected to transform Cortez from a sagebrush town into a green town of lawns and shade trees.

Water Company Refrains from Testing Ordinance in Court

Council Bluffs, Ia.—Involved in the water works situation in Council Bluffs is a dispute between the water company and the city of the bill for hydrant rentals, the company refusing to recognize the new rate fixed by ordinance and the city refusing to pay the company the old rate. The water company has never instituted legal proceedings to test the validity of the ordinance or reasonableness of the rates. The difference in the amount claimed under the old ordinance and the amount due under the new ordinance is now nearly \$15,000. Just how the new City Council will handle the problem is a matter in which the people of the city are intensely interested. Ex-Alderman Jensen has prepared a statement of the situation to date and expresses the hope and belief that the City Council will stand pat on the rights of the city and refuse to settle on any other ground than that of the rates under the new ordinance.

Reservoir is Finished

Frostburg, Md.—The new reservoir for Frostburg, which will have a capacity of 1,125,000 gallons and will hold almost three days' supply, will soon be turned over to the town by the contractors, Fuller Brothers.

Water Works Tax Question for Law Department

Jersey City, N. J.—The Street and Water Board has asked the city's Law Department to advise the Board whether the city's old water works at Belleville have been taxable heretofore. The city has been paying a real estate tax on these works. This year a law was passed legalizing the imposition of a real estate tax on water works and making it possible for municipalities to collect taxes on water works located therein. This law will allow Union Township, Bergen County, to collect taxes from Jersey City on the old Belleville plant. What the Street and Water Board would like to know is whether taxes heretofore paid were illegally paid.

Well Develops Splendid Supply of Water

Kezar Falls, Me.—A well which has just been finished by the Artesian Well & Supply Co. for the Kezer Falls Water Co., although sunk to the moderate depth of 240 feet, has developed a splendid supply. The water stands within five feet of the surface and the test pump was only able to lower it about six inches. The well is estimated to be good for 500 gallons of water per minute.

Working for 1911 Water Contract

Macon, Ga.—At a meeting of the joint committee of the City Council and of citizens engaged in the important duty of securing water arrangements for the city of Macon in 1911, at the City Hall plans were discussed as to the advisability of a renewal of the water contract and also the chances of making a purchase of the present system or constructing a new one. The work will be pushed on to a definite conclusion. The Water Committee of Council is composed of W. T. Anderson, Eli Elkan and W. H. Fetner. The Citizens' Committee is composed of O. E. Dooly, C. A. Caldwell and E. W. Stetson. Mayor Moore and City Attorney Lane were also at the meeting.

Inspect New Pump

Milwaukee, Wis.—City Engineer Charles J. Poetsch and Thomas McMillan, chief engineer at the North Point Pumping Station, visited the West Allis shops of Allis-Chalmers to inspect the new 12,000,000-gallon high-pressure pump which is being built for the city. The contract was let on Nov. 16, 1909, and in spite of the fact that one year was allowed for delivery it will be installed at North Point on June 1, five months ahead of time.

Los Angeles Hydro-Electric Plant

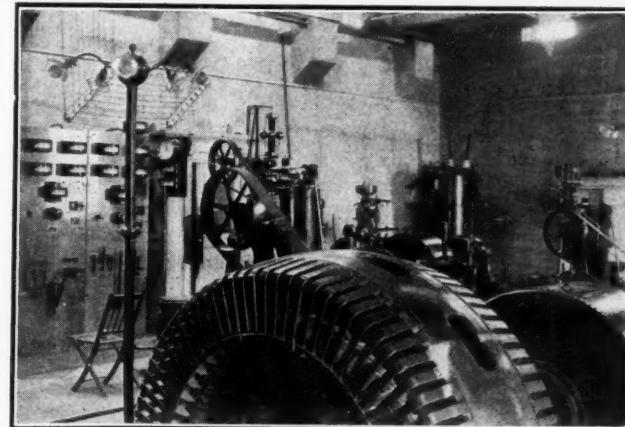
Los Angeles, Cal.—Los Angeles owns and operates an electric plant, although the current is not brought to the city. The plant is located on Cottonwood Creek in the Owens Valley. One of the illustrations shows the interior of the station with the generator which converts water-power into electric current. The other photograph shows the intake, three miles above the power house in Cottonwood Canyon, at the entrance of the long



Courtesy Los Angeles Express

INTAKE, COTTONWOOD CREEK

flume. Transmission lines distribute the current to many of the construction camps in the Owens Valley. The current operates electric shovels, dredges and other labor-



Courtesy Los Angeles Express

COTTONWOOD POWER STATION

saving machinery and lights the camps and tunnels. Cottonwood Creek is only one of the seven power sites along the line of the aqueduct, and it is one of the small ones. The citizens last week voted \$6,500,000 bonds to develop 120,000 horsepower electrical energy along the Owens River.

Terms of Oakland's Purchase of Water Company

Oakland, Cal.—A proposition for the purchase of the controlling interest in the People's Water Company by the city of Oakland and other Alameda county municipalities for \$16,600,000 has been submitted to the Oakland City Council. The agreement was accepted by F. C. Havens, chief stockholder of the People's Water Company, and President B. H. Pendleton of the City Council, subject to the approval of the Council. The gist of the offer is as follows:

Water district to be formed under new law by at least three municipalities served by Peoples Water Company.

Bonds to be voted and \$16,600,000 paid for controlling interest in the Peoples Water Company which would give municipal control.

Obligations are to be assumed by the water district, which would make the total initial cost about \$18,500,000.

Water district to be controlled by Board of Trustees, elected on basis of population by communities joining it.

Water district to serve communities refusing to join, and collect for such service.

Peoples Water Company to dismiss all pending litigation, give Oakland title to Mosswood Park and whatever of \$200,000 is left after purchasing this property.

Peoples Water Company to expend \$2,200,000 within the next three years to build San Pablo dam, filter plant and all structures necessary for securing a daily supply of 8,000,000 gallons for the benefit of Oakland division.

Water rates to remain as at present for the coming fiscal year, and for the fiscal year ending in June, 1912, unless the revenue derived by the company shall show a "very marked increase."

San Francisco Buys Tuolumne Water Company

San Francisco, Cal.—The Mayor has approved the contract between the city and the Tuolumne Water Supply Company, whereby the city acquires by purchase the Tuolumne properties for \$400,000, and approves the option on the Cherry Creek properties for \$600,000.

Water Storage Plan

Albany, N. Y.—A bill which permits the construction of water storage dams and reservoirs at various points in the Adirondacks, including several in the Saranac region, has been introduced in the Legislature by Assemblyman Fowler. The bill names twenty-two locations where reservoirs may be built. Private land may be taken for the water storage by agreement with the owners as to price or by condemnation. A second bill relating to the same subject broadens the jurisdiction of the State Water Supply Commission over the improvement of water courses. A third bill authorizes the issuing of State bonds not to exceed \$20,000,000 to defray the expenses of the work.

Leak or Fast Meter?

North Arlington, N. J.—A householder named Feltman has, according to his meter, used 1,840,000 gallons of water since September 1. Borough Clerk John Devine, who is also water clerk, says there must either be a big leak in the pipe or the meter is defective. Marshal Fred Reipe says he saw the meter at work and that the indicator ran as fast as the second hand on a watch. The meter reading, if sustained, would render Feltman liable for a bill amounting to \$370. The Water Clerk, Council, Marshal Reipe and Mr. Feltman declare that something must be wrong with the meter and the matter will be looked after by the Water Committee.

Plans for New Water Supply for Trenton

Trenton, N. J.—The Board of Water Commissioners has decided to grant a delay of two months before adopting any definite plan of filtration, in order that the Trenton White City Company may have the opportunity of demonstrating the presence of a sufficient supply of water from what is supposed to be a river running beneath the old resort. Providing the claims of Receiver Charles J. Fury and Expert John D. Kilpatrick, of the White River Company, are sustained, it will be unnecessary to build a \$750,000 filtration plant to purify the Delaware River water. It is claimed there is ample spring water at White City, an illustration of which was printed last week, to supply the entire city. John H. Backes, counsel for the company, said that the Water Board is selling water to Trenton's inhabitants for \$80 a million gallons, and that the White City concern would sell water to the city for \$40 a million gallons. The city, by reselling the water to its inhabitants at the present rate of \$80 a million gallons, would then realize a profit of \$680 a day, or \$24,800 a year on the average daily rate of 17,000,000 gallons and in addition to this profit would save several hundred thousand dollars about to be expended for a filtration plant. He contended that the city would save thousands of dollars a year by not being compelled to make an outlay for the maintenance of filtration apparatus, and that the present pumping station would not have to be operated with its great annual expense for labor, coal and maintenance. The White City proposition is to deliver its water to the city reservoir. Expert Kilpatrick stated that he had made a superficial examination of the water conditions at the White City and was convinced that there was a vast supply of water to be had there. Mr. Kilpatrick said that if the final tests are begun at once he believed that a pumping plant could be erected and made ready for use by January 1 next.

Better Water Rates for Ohio Town

Warren, O.—The franchise of the Warren Water and Light Company has been renewed by Council for twenty years. The company signed an agreement to supply water at lower rates for the next ten years. The hydrant rate was lowered from \$40 to \$30; the meter rate was also reduced materially. The company agreed to make numerous improvements and to furnish water free hereafter for city sprinkling.

Public Inspection of Filter Plant on Holiday

Wilmington, Del.—The Water Commission desires to make Decoration Day the date for a public inspection of the new filter plant at the Weldin Farm. It is proposed to have the various city officials proceed to the filter plant following the memorial parade in the carriages they used in the parade. Arrangements also will be made for conveying the public from the end of the street car line beyond Washington street bridge to the filter plant.

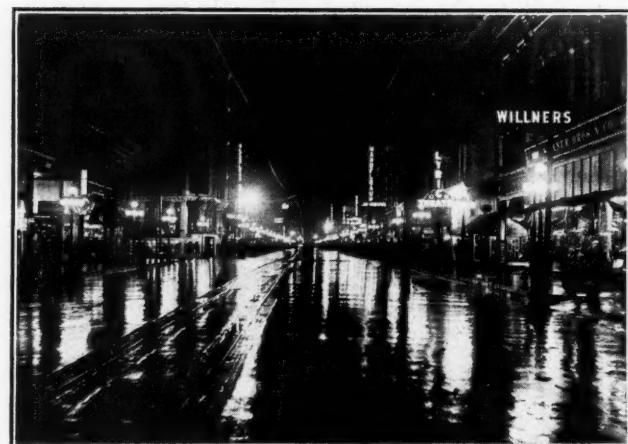
STREET LIGHTING AND POWER

Competition in Lighting

Chico, Cal.—Citizens of Chico are pleased at having competition in electric lighting, like their neighbors in Redding and Red Bluff. The Sacramento Valley Power Company has brought its lines from Shasta County to enter into competition with the Pacific Gas and Electric and Northern California Power Companies for the business of superior California towns.

Illumination of Walnut Street, Des Moines

Des Moines, Ia.—The illustration shows Des Moines' Great White Way, Walnut street, considered by some as the best lighted street in the world. A similar lighting system is now being used on every downtown street. The



Courtesy Greater Des Moines Committee

DES MOINES' GREAT WHITE WAY

photograph was taken when it was raining in order to secure the pavement reflection and show the effect of the lighting system. Another reason was in order that few people and especially no automobiles, would be on the street.

City Electric Current Not Up to Voltage

Muskogee, Okla.—That the city is getting but 88 per cent of what it is paying for in the way of electric lights, that private consumers are losing 5 per cent in voltage, or a reduction of 27 candlepower, and that arc lights are not properly cared for is claimed by the city after a series of secret tests made by Prof. W. N. Gladson, of the University of Arkansas. Two tests have been made by the Professor at the instance of the City Council, one on the lighting system of the Pioneer Telephone Company and the other at the residence of the Mayor. Manager Hoagland, of the electric company, expressed himself as being willing to assist in making tests of the service at any time.

Illuminate at Night; Not Unsightly in Daylight

Rochester, N. Y.—W. S. Wells and A. C. Jones, of the Edison Electrical Illuminating Company of Brooklyn, were in Rochester last week, inspecting the substations of the lighting company, the visit here following a similar inspection in many other cities. In discussing impressions received here one of the experts said:

Of all the cities which we have visited, I am in fairness willing to concede that you hold the banner right here in Rochester for artistic street illumination. I viewed your streets last evening, and I need no further evidence of your nightly display to concede the excellence of the lighting effects. In addition to that, I was to-day again almost as strikingly impressed with the absence of unsightly daylight effects from these same signs which lend so much charm at night. In too many cities these signs are an eyesore by day, and it is a question if the illumination by night is an offset to the effects by day. You have somehow managed to escape the undesirable features of street illumination.

City Protests to Save Power

Spokane, Wash.—The Council has adopted a resolution introduced by Councilman J. A. Schiller, that the city protest to Secretary R. A. Ballinger against the Washington Water Power Company being required to remove its bear trap dam at Post Falls. According to the resolution, the removal of the dam will reduce the power at the city pumping station some 60 per cent.

FIRE AND POLICE

Police Have Drilling Grounds

Huntington, W. Va.—At the direction of Chief of Police Robinson, the back yard at the City Hall has been graded and leveled and so arranged that the officers will have a drilling ground. The yard is sufficiently large for conducting the necessary maneuvers and will be beautified by a row of flower beds that will run the whole way around the place.

Fire Motor Saves a House

Kansas City, Kan.—The motor car recently purchased for the Fire Department was the means of saving a \$1,000 cottage near Twenty-first street and Riverview avenue. The house is in the outlying district, distant from fire protection. The automobile made the run from fire headquarters to the burning house in five minutes. By the means of two chemical extinguishers carried on the machine the fire, which had already gained considerable headway, was held in check until the department arrived.

Annual Inspection of Fire Houses

Mt. Vernon, N. Y.—Their annual inspection of the Fire Department, April 15, impressed the Mayor and Board of Aldermen more forcibly than ever with the efficiency of the service and the bulwark of protection which it affords against an ever-present danger. At every house the city officials noted the modern apparatus, the house equipment and the full ranks of the companies. They gave careful attention to what needs the department officials presented and expressed unrestrained admiration of a quick hitch at headquarters, where seven horses were hitched in less than ten seconds. It took the inspecting party over two hours to make the rounds, although the trips between the fire stations lasted only a few minutes, for the party was whirled about in automobiles. The Fire Commissioners had small typewritten slips prepared, stating the needs of the department which are most pressing and these were placed in the hands of each Alderman early in the evening. At each fire station the Mayor made a brief address to each company.

Determined to Have Best Department in County

East Syracuse, N. Y.—To have the best Fire Department of any village in Onondaga County is the aim of the reorganized Fire Department. A plan to secure this distinction was announced by the new officers elected by the four village companies. A fair and other entertainments will be arranged to buy new uniforms. Drills will be held and the department reorganized from top to bottom, with a constitution and by-laws to govern all the companies. "We intend to lift our department back into its old class as the leader of any in the county," said Fire Chief L. M. Van Alstine.

Central Fire House of Large Capacity

Oklahoma City, Okla.—The new central fire house at the corner of California and Walker streets will be a three-story structure, each story being divided into three sections, front, middle and rear. On the ground floor the automobiles will be kept in the front section, the horses in the middle and the wagons and trucks in the rear section. The floor has capacity for automobile, chemical and two automobiles, fourteen horses and eight wagons and trucks, besides special pieces. On the second floor the dormitory will be in front, sitting room, library and possibly dining room in the middle and bath rooms and gymnasium in the rear.

Pension for Firemen of Portland, Me.

Portland, Me.—Portland has finally consented to pension firemen. Under the ordinance any call or permanent man 60 years of age who has served fifteen years can retire on a pension, also men injured while on duty. The amount to be paid will be left to the City Council, but in no instance is it to be less than \$35 a month.

Texas Town May Appoint Fire Marshal

Seguin, Tex.—The Seguin Fire Department has prepared a recommendation to the City Council to create the office of Fire Marshal and to appoint a suitable person to fill same.

New Standards for Fire Hose

New York, N. Y.—A change in the method of buying fine hose that would keep out rotten lengths that burst when used was discussed at fire headquarters by Fire Commissioner Rhinelander Waldo and representatives of fire insurance companies, hose manufacturers, the Merchants' Association and others. The National Board of Fire Underwriters sent representatives from various cities. Chief Edward F. Croker and other experts were there to explain things. It was decided that the Fire Department should get strong and durable hose on standard specifications from the lowest bidder. The bids are to be open and those that do not meet the specifications will be thrown out. A committee has been appointed by Commissioner Waldo to supervise the purchase and to examine all those. Each length will be branded and its history kept at headquarters so that if it proves unworthy in the three years of its guarantee it may be returned to the manufacturer, who must refund or replace it with those of the required standard.

Chicago's Firetraps Doomed

Chicago, Ill.—In one of the most sensational crusades ever launched by a department of the city government, ten of the most energetic and most technically efficient inspectors of the Building Department, under the leadership of one of the chiefs of the department, has begun the work of raking the downtown district with a fine-tooth comb for violations of the building ordinance and for conditions that bring peril from fire to the occupants of buildings within the principal business zone of the city. Every building, large or small, between Chicago avenue on the north, Halsted street on the west, Twenty-second street on the south and Lake Michigan, will be inspected thoroughly and a report of its exact condition filed, together with the number of persons housed on each floor. These reports will be made each morning and the same day orders will be issued to the owner or agent of each to remedy whatever defects are found. It is estimated that it will take the ten men one year to do the work.

Fire Police Form One Body

Phoenixville, Pa.—For better police protection in case of emergency, and to help duty work in time of fire, the fire police of the three different borough companies have been organized into one body, officers chosen, and a Chief with Lieutenants elected. Five fire police of each company make the total number 15, and all have been sworn in by Burgess O'Neal with the authority of police officers of the borough. Although having full authority to make an arrest at any time, the fire police are officers who will act only in time of emergency of fire. In case of riot or similar trouble, the town now has a protection from 23 police. These men can also be appointed to fill vacancies caused by sickness of officers on the regular force. Andrew Hyland, of the Friendship Company, has been chosen President, and Charles Swier, of No. 1, Captain.

Good Work of Chemical Engine; Steamer Discarded

Salem, Mass.—Salem has a chemical engine that has been in constant use for sixteen years, and Chief Arnold estimates that it has extinguished at least 50 per cent of fires. It will find quarters at South Salem when the auto chemical arrives. After thirty years of service in the Salem Fire Department, the old Naumkeag steamer built in 1880, has been sold to Captain Ricker, of Cambridge, for \$325.

Waco Has Fire Marshal

Waco, Tex.—This city now has a Fire Marshal, the ordinance creating the office and prescribing the duties having been passed by the City Commissioners. The office is combined with that of the City Recorder, who is to receive a salary of \$300 for his duties as Fire Marshal. He will be assisted by the Fire Chief in making inspections of fires. The ordinance is framed to comply with the ruling made recently by the State Fire Rating Board.

Town Discards Fire Horses

West Springfield, Mass.—West Springfield proposes to dispose of all horses in the Fire Department and equip hose wagons with motors.

New Appliance in Police Van Saves Man Dying of Gas

Pittsburg, Pa.—The new oxygen appliances carried on patrol wagons proved a life-saver recently for Samuel Rorison, an employee of the Atlantic Refining Company, after he had been overcome by blended oil and gas fumes. Rorison was hunting a leak in a still room in the Fifty-seventh street branch of the company when he was overcome and fell to the floor unconscious. Dr. D. E. Griffiths was called, and on noting Rorison's condition had him sent to St. Francis' Hospital in a patrol wagon. On the way Dr. Griffiths used the oxygen appliance recently installed. Thus Rorison was kept alive until the hospital was reached, where more effective measures were taken. Superintendent McQuaide had the oxygen outfits installed on every patrol wagon about nine months ago, following the death of two men in a sewer in Craft avenue.

Springfield to Buy Bloodhounds

Springfield, Mass.—Springfield is to have two bloodhounds. The City Council so decided after it had been learned that bloodhounds don't cost as much as was supposed. Alderman Denison at the last meeting introduced an order providing for the appropriation of \$300 for the purchase of a pair of the dogs, but it was objected that the sum was insufficient and that a pair of bloodhounds would cost \$1,000 to \$1,500. Inquiry has been made and \$300 found to be sufficient. This sum was unanimously voted by both branches, and the dogs will be bought and kept at Forest Park.

Red Call Lamps for Police Patrol Boxes

Washington, D. C.—Some time the policemen on their beats at night may see big red electric lamps flash up brilliantly on the patrol boxes along their various beats, and then they will know that there is trouble and that the station wants them to call up. This is part of the idea now being worked out by Walter C. Allen, the District's Electrical Engineer. As a starter the First Precinct will soon have a brand-new telephone switchboard with a separate line to each patrol box. If the first stages of this experiment are successful the entire city may soon have a system of telephone patrol boxes by which a policeman may be called upon his beat at any hour of the day or night. The present system of signaling to and from patrol boxes is a complicated one. The policeman on duty at the station house switchboard does not know where a call comes from until the policeman at the patrol box tells him. With the new switchboard installed the instant a policeman at the box removes the receiver from the hook the station house will know the box from which he is calling. Not only will the exact box from which the officer is calling be known absolutely, but a call can be sent to any box, both by sounding a loud ringing bell and by lighting a lamp at night. The lamp would be placed inside a lantern having glass of a distinctive color. At night a policeman could see the light flash up a block or more away, and the station house could light up all the boxes on a policeman's beat, so that he would be sure to see the one nearest him.

GOVERNMENT AND FINANCE

Two Ordinances Stolen

Altoona, Pa.—Something of a sensation was caused in official circles by the announcement that two ordinances, relating to the abolition of reviewers on public improvements had mysteriously disappeared from an office at City Hall after they had been passed by Common Council and read once in Select. It is supposed they were stolen. The theft was discovered in checking up last year's legislation. Two similar ordinances disappeared once before, but were discovered in time to draw duplicates, which are now missing.

City Bureau of Information and Complaint

Boston, Mass.—Mayor John F. Fitzgerald intends to emulate the example of his predecessor in the establishment of an information and complaint bureau at City Hall, and he is anxious to find a "walking encyclopedia," whom he may appoint as head of the new municipal department.

Council Stops Advertising; Citizens Object

Burlington, N. J.—Taxpayers in every ward have arisen to condemn the action of Council in passing a resolution temporarily barring as "too expensive" the advertising in local newspapers of pending ordinances, and a sensational feature of the situation developed when Councilman P. T. Lyons, of the Fourth Ward, repudiated the resolution, which he introduced, and declared he presented it "by request." "I really did not know the contents and meaning of the resolutions until I read them the next day in a newspaper," he said. Citizens declare the move will throw suspicion on every account passed by Council, as citizens have been making an effort to get itemized accounts before the public and will now be deprived of the publication of even the "bills rendered."

Legality of Publication of Ordinances Questioned

Lorain, O.—C. S. Ferguson has filed a suit enjoining Director of Public Service W. E. Knight from entering into a contract with Faragher & Randall, contractors, for the construction of a storm water sewer costing approximately \$26,000. This action is for the purpose of determining the validity of city ordinances which have been published in the local German paper, because the city officials held it had not a bona fide circulation of 1,000. The decision of the court will effect practically every ordinance passed by the City Council in the last six months.

Two New City Positions

Spokane, Wash.—City Council has created two new positions—City Chemist and Chief Assistant to the Building Inspector. The sum of \$1,575 was appropriated to pay the salary of the Chemist to the end of the year, while the other office will pay \$150 per month.

Mayor Would Step Aside for Commission Government

Wilkes-Barre, Pa.—Mayor Lewis P. Kniffen in a published statement comes out strongly in favor of the commission form of government for cities. He says, after a study of the subject, he is convinced that a Board of Commissioners can do better work than a Councilmanic body. The Mayor also declares that if the next Legislature should pass a law providing for a form of government of cities by commission he would not stand in the way, but would resign at once. There has been friction between Mayor Kniffen and the Councils for some time past. The crisis was reached last week when Councils passed an important resolution over the Mayor's veto.

STREET CLEANING AND REFUSE DISPOSAL

Suburbanites Must Buy Trash Cans

Birmingham, Ala.—Residents in the newly annexed suburbs object to buying metal trash cans with lids, as called for by the ordinances of the Greater City. They claim dealers are taking advantage of the situation and charge much more than the real value. Chief Sanitary Inspector Walter Burson insists that these cans must be installed in all premises and will in a few days begin making arrests of derelict citizens.

Refuse Cans Barred in Spotless City

Dayton, O.—One step of the movement of the Federated Women's Clubs of the city toward a spotless Dayton will be the introduction of an ordinance in Council abolishing all receptacles for refuse in the city. The receptacles, whether of the official steel type or not, will not be allowed on the sidewalk, public street or alley, if the ordinance is passed. The purpose of the ordinance is to keep all refuse barrels and garbage cans within cellars and back yards until the garbage collector calls for them. The red barrels now in front of places of business which have been used for advertising places will be done away with by the ordinance, and at the same time it will be illegal for people to sweep little piles of waste into the gutters. The passage of the ordinance, which is an amendment of previous ordinances, will render worthless a nice new batch of placards which the Board of Health has had printed and is preparing to post in places where the piles of refuse were accustomed to be found. The placards of the Board of Health state the penalty for throwing refuse any place but in the "authorized steel receptacles."

Would Utilize Garbage in Making Alcohol

Oakland, Cal.—A plan for the consumption of all the garbage of Oakland in the making denatured alcohol at a plant being established on the Alameda side of the estuary, was broached before the Board of Works by Dr. F. T. Davis of Alameda. Dr. Davis asked permission to give a demonstration at East Ninth street and Tenth avenue in East Oakland. He requested garbage from the city for this purpose. The Alameda plant will not be ready for operation for some little time yet, but if the demonstration is a success it is probable that he will obtain all of Oakland's garbage for the purpose of making alcohol. His purpose is to charge the city nothing for the consumption of garbage.

Garbage Question Is Imminent

Fort Dodge, Ia.—The city is face to face with a serious garbage situation. No plans have been made either by private companies or by the city for the collection and disposal of refuse during the summer. During the winter garbage was generally burned in the furnaces. Two companies that collected garbage last year have disbanded. One of these took the material to a hog ranch and the other owned a dump so situated that it was not a nuisance.

No Wagons Must Be Stored in Streets

Jersey City, N. J.—The Street and Water Board has decided to move against the truck and wagon owners who obstruct the streets with their vehicles at night. There is an ordinance against storing vehicles on streets. Clerk Bouton has been directed to send notices to a number of violators and warn them against keeping their wagons in the streets.

Mass Meeting Demands Better Sanitation

Kenosha, Wis.—At a mass meeting steps were taken to secure better local sanitary conditions. Reorganization of the Board of Health is demanded and an appropriation which will make it possible to employ a Health Officer who will give his entire time to the office. Collection and disposal of garbage is also desired.

Mt. Vernon Officials to Inspect Garbage Plants

Mt. Vernon, N. Y.—Frank Nordone's proposal to build a crematory for the incineration of all refuse matter and garbage on grounds at the disposal works is again under consideration by the Board of Aldermen. Mr. Kirk said that the city solons should have an opportunity to examine the project a trifle more thoroughly and determine whether they wanted to build the plant themselves or accept Mr. Nordone's proposition. Attorney Hamburger, for Nordone, stated that his client was perfectly willing that, should the plant erected by him prove unsatisfactory, it be optional with the city to reject or purchase it. It was finally decided that the Board visit Staten Island and other places where incinerating plants are in successful operation, in order to acquire some data along that line.

Arrest As Aid to Clean-Up Movement

Minneapolis, Minn.—Jos. Gleason, Street Commissioner, Fourth Ward, backed by Alderman C. D. Gould, has placed signs in all parts of the ward, warning people that they will be arrested if they throw refuse upon the streets. "Policemen won't do anything," said Alderman Gould, "so I have taken this action for our own protection. We will swear out warrants for anyone violating the ordinance." Alderman Gould is also preparing an ordinance designed to punish contractors who scatter sand and building refuse on the streets without cleaning up afterward. Dr. P. M. Hall has set aside dumping places for clean-up week.

Incinerating Plant Burned

San José, Cal.—Property valued at \$5,000 at the incinerator plant of the San José Sanitary Reduction Company was destroyed by fire April 10. George A. Carson, inventor and manager, was able to save part of the plant, but the power house was a wreck. After the fire evidence was discovered tending to show that the fire was of incendiary origin. The plant has been in operation consuming 14 tons of garbage a day. There has been much opposition on the part of neighbors and others to the establishment of the plant.

Clean-Up Day No Novelty in Lynchburg

Lynchburg, Va.—As showing that the movement for a clean-up day, agitated by the Civic League and approved by the Mayor, evidenced in his recent proclamation, which appointed April 26 for such a day, is not a new thing, the following extract from an ordinance passed April 10, 1833, will prove of considerable interest, it being taken from a copy of "Revised Ordinances" furnished by an old resident of the city:

Be it further ordained, That whenever, in his opinion it shall become necessary to the preservation of the health of the citizens, the Police Master is authorized to employ one or more persons to cleanse or sweep any one or more of the streets and alleys within the limits of the corporation, and to cause to be removed from such streets and alleys all filth, dirt or other thing which in his judgment shall appear necessary and proper, and the said Police Master shall present his account with proper vouchers, quarter-annually, to the Board of Common Council for payment of all expenditures made by him under this ordinance.

Campaign Against Private Garbage Collectors

Syracuse, N. Y.—Drastic measures will be used by the city authorities to stop the collection of garbage from Syracuse hotels, restaurants and dwelling houses by private individuals. Health Officer D. M. Totman is of the opinion that the interests of the public health would be best served if all city garbage was collected by the Department of Public Works and disposed of at the reduction plant, and will lay the matter, in all its phases, before Commissioner of Public Safety H. E. Hessler. As a result it is believed that the private collection of garbage will be summarily checked and arrests made if necessary. Practically all the hotels and restaurants in Syracuse dispose of their garbage to private individuals. Four persons are said to divide the collections from these sources. In addition there are a number of farmers who collect garbage from private houses. All of the garbage so collected is used for feeding hogs, and is regarded as rather valuable in view of the high price of pork. Stated yearly sums are paid, it is understood, for the garbage privilege at a number of hotels and restaurants. The application of the Syracuse Reduction Company for an order requiring the city to deliver all garbage at its plant is being heard in the Supreme Court. An injunction is asked restraining the city from permitting anyone to collect garbage and carry it through the streets of Syracuse except the agents of the city. The answer of the city sets forth that the city has acted in good faith and that any private individuals who are collecting garbage are doing so without authority or license from the city. No permits or licenses for this purpose have been granted since 1910 and none are now in force.

Police and Health Officials Co-operate in Clean-Up

Washington, D. C.—Citizens must now watch out for dirty back yards, as two armies are waging war upon them. The inspectors of the Health Department and the inspectors of the Street Cleaning Department are working hand in hand to clean up the city's unkempt back yards, the rotten back fences, the manure heaps that exist without reason or license, and every other form of uncleanliness that comes from being careless about what goes on outside the back door. Superintendent Wood, of the Street Cleaning Department, has a great pile of reports on the dirty back yards of the city. The way his inspectors have combed the District foot by foot, street and alley, for the past year, has brought to the attention of the District building people a report on every unkempt back fence and back yard that has existed. When a bad back yard, or a broken fence, a pile of ashes that has washed down, or anything of that nature that is found by these street cleaning men, it is immediately noted. A report goes to the superintendent of the department. He sends it along to the Commissioners, and either the Police or the Health Department is notified, so that the proper steps can be taken to abate the nuisance. The street cleaning men follow up the work of the contractors whose job it is to keep the alleys clean, and in passing along the alleys and streets the inspectors keep an eye open for the sort of back yard that makes one ill to look upon. It is getting to be second nature with the inspectors to watch out for just this sort of thing. The street cleaning inspector bears no authority to go into the house which is harboring these bad conditions, therefore the health inspectors and the police are notified.

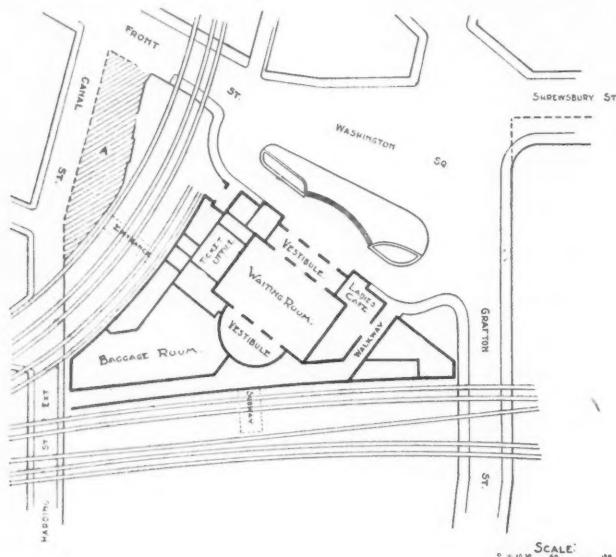
RAPID TRANSIT

Des Moines Takes Steps to Own Street Railway

Des Moines, Ia.—What is believed to be the first step toward the municipal ownership of the street railway company was taken by the City Council when it authorized Mayor Hanna to secure expert opinions as to the valuation of the physical property of the company. The resolution also provided "That for the intelligent consideration of the terms of a franchise for the Des Moines City Railway Company and for the intelligent regulation of service by the company, together with just charges to be allowed for such service, it is hereby declared necessary for the City Council to get such expert opinions, and that the Department of Public Affairs is hereby directed to enter into correspondence with a view to securing such expert opinions and to report same to Council."

Worcester Union Station and Approaches

Worcester, Mass.—The new Union station is almost triangular in shape and the front facing Washington Square is the north end of the station. The Boston & Albany tracks are on the east and the New York, New Haven & Hartford tracks on the west. The passenger tracks are nearest the station and the freight tracks on the outer side. The lines of tracks are located one story above the ground floor of the station. On the west side of the station, the



PLAN OF NEW WORCESTER UNION STATION AND SURROUNDINGS

shaded part of the cut marked A was private property bought by the city, the building on which is to be torn down to afford an approach from Front street. On the west side are provided accommodations for automobiles, hacks and baggage trucks. The space marked "walkway" is for the use of those passengers who do not wish to pass through the station going or coming from a train. The plan shows also the approaches to the station from various points. It shows Shrewsbury street as it will appear when widened, and shows Washington Square with the grass plot in front of the station and the spaces in it at either end for flower beds.

Fender Tests at Portland, Ore.

Portland, Ore.—The City Council has refused to adopt the street car fender manufactured by the Portland Railway, Light & Power Company, as recommended by two members of the special Council Committee which has been conducting the fender tests, and the proposition was referred to the committee for further consideration. No further action will be taken in legalizing any fender until the Nelson fender, which has been given two unsuccessful trials in this city, is again exhibited before the committee. Councilman Rushlight, the third member of the special committee, opposed its adoption, saying that it is not a good fender and will not save the lives of people who are run down by the street cars. He said he still had faith in the Nelson automatic fender, which is supposed to not only

control the action of the fender when it comes in contact with a body, but also shuts down the air brakes on the car on which it is attached. He desires to give the new device another thorough test before definitely deciding the fender question. He declared that in view of the fact that Brooklyn, N. Y., and other Eastern cities have adopted this fender, it must have some merits which other such devices do not have. The railway company is anxious to have the Council adopt some fender and is bringing pressure to bear in favor of the one it has invented. The officials of the company declare that as no fender is now legalized they are operating cars contrary to the State law and are liable to arrest.

MISCELLANEOUS

Mayor Wants Zoo and Aquarium

Boston, Mass.—Mayor John F. Fitzgerald gave a public hearing at the City Hall to the advocates of an Aquarium at Marine Park, South Boston, and a Zoo at Franklin Park. He was so favorably impressed by the arguments of Dr. Charles S. Minot, president, and Frederick W. Coburn, secretary of the Massachusetts Zoological Society, and Salem D. Charles, representing the Massachusetts Fish and Game Association, that he has asked Council to send a representative to Europe to report on similar museums there. Mr. Coburn said: "In connection with the proposed removal of the fishing fleet to South Boston, the establishment of a museum of the appliances and processes used in the fisheries and of a trade school for the training of fishermen has already been proposed. A unique 'university of the fisheries' may thus be created on the South Boston waterfront."

Telephone Rate Regulation in Dallas

Dallas, Tex.—Telephone rates are to be regulated by the Board of Municipal Commissioners, an initiative ordinance to this effect having been carried at a general election. Initiative ordinances for a 3-cent fare for standing passengers in street cars; for the extension of the eight-hour law, and that for the creation of the office of public defender in the City Court were defeated.

Dallas 1910 Improvement Fund

Dallas, Tex.—With the proceeds of bonds and funds raised in other ways, the following sums will be available for 1910 improvements: Streets, \$1,000,000; water works, \$600,000; sewage disposal, \$550,000; public schools, \$100,000; sanitary sewers, \$100,000; city hospital, \$100,000.

Sale of Dangerous Toy Explosives Prohibited

Newark, N. J.—Newark is out for as safe and sane a celebration of the Fourth of July as possible. The authorities have made an announcement prohibiting the use of toy pistols, blank cartridges, all explosives containing picric acid or dynamite, and paper balloons. Such things not only may not be used in the city, but must not be sold or even kept in stock. Moreover, no firearms of any description may be sold to any person under fifteen years of age, and all firearms sold to anybody at any time must be so marked and recorded that they and their purchasers can thereafter be identified.

Scarcity of Horses Raises Contract Prices

Omaha, Neb.—Scarcity of horses and mules for teaming purposes is proving of serious import to contractors. In Omaha it has reached the point where bidding on excavation work is actually being restricted because of the inability of contractors to get drayage facilities for the removal of earth. The shortage has had the inevitable result of putting up the prices to record figures. As fast as teams can be secured they are snapped up by contractors and shipped out on the big railway contracts of the Northwest and West. Contractors declare that teams now cost from \$6 to \$7 a day, and are almost impossible to get at that figure. The scarcity of the animals is attributed to the heavy demand of the big railroad contracting concerns now working in the western extensions. They are credited with having depleted the supply of their big shipments of the early spring and late winter in preparation for the work of the season.

"More Daylight" Law Repealed

Cincinnati, O.—The City Council has repealed the ordinance, passed a year ago, whereby "more daylight" was to be procured to workers by setting local clocks two hours fast from May to October of each year. Councilman Meyer, who introduced the repealing ordinance, said that, as railroad companies would not change their train schedules and as the ordinance, when put into effect, would only cause endless confusion and annoyance to workingmen and others, it would be impractical. He said he recognized the fact that Cincinnatians who urged its passage were sincere in their efforts, but that the consensus of opinion is that it is beautiful in theory only.

Complain of Weights and Measures Law

Columbus, O.—Columbus commission men have complained to Mayor Marshall concerning too rigid interpretation of the law regarding the size of measures, on the ground that a too strict enforcement of law in Columbus will prevent shippers from making Columbus their market. The law most complained of is that which requires that every measure of any sort used in the sale of produce shall be a definite fraction of a bushel. Many shipments are made in baskets which do not conform to such a measure. However, they are not sold by measure, and no particular injustice is done to the purchaser, yet a rigid enforcement of the law makes their use impossible. Many shippers have no other means of making shipments, and thousands of such baskets come into Columbus daily. A committee of the commission men, headed by William Fisher, complained to the Mayor that the Columbus officials had become so rigid in their interpretation of the law that Columbus was threatened with a famine of produce unless relief is in sight. The Mayor promised to investigate.

Kansas City, Kas., Must Retrench

Kansas City, Kas.—The City Commissioners are facing the problem of avoiding a shortage of \$45,000 in the city's running expenses between now and January 1, 1911. To do this the newly elected officers must reduce the general expenses 40 per cent. The reductions planned will affect the Police Department and the forces in the city offices. They will not affect the Fire, Engineering and Water Departments. The situation, however, isn't so bad with other departments. The Commissioner of Finance found \$47,488 in the general improvement fund, which is used for the maintenance of streets and sidewalks. Other revenue to come will swell the fund to about \$57,000, and this will be adequate for the proper maintenance of the streets and sidewalks under the system established by Otto Anderson, Commissioner of that Department. It also will justify the maintenance of a street cleaning system under Mr. Dean, the Commissioner in charge of the Health and Sanitary Departments. Mr. Dean was instructed by the commissioners to investigate the cost of street cleaning apparatus and the establishment of a street cleaning system—something the city has never had.

Ten Thousand Trees Planted in Texas Town

Childress, Tex.—At least 10,000 trees have been planted in Childress this winter and spring, and the favorable season will insure the life of nearly all. In every part of the city new trees are to be seen, and within a few years Childress can boast of the prettiest lawns and streets of any Panhandle town.

Willow Shade Trees for Potomac Park

Washington, D. C.—What is regarded as one of the most attractive features of Potomac Park is the line of weeping willow trees skirting the southern boundary of the park along the river front. These trees are fine specimens of arboriculture, but are not sufficiently numerous to complete the desired line of green on the river side of the park. To accomplish that end and at the same time add a grateful shade to the spaces now exposed to the sun's rays, fifty-three willow trees have been planted on the banks of the river where most needed. Another improvement introduced in the park by Col. Cosby, the Engineer officer in charge of public buildings and grounds, is the installation of marking stones along the roadway at one-quarter, one-half, three-quarters and one mile from the 17th street entrance.

LEGAL NEWS**A Summary and Notes of Recent Decisions—Rulings of Interest to Municipalities****Paving Contracts—Defective Concrete**

Ryan vs. Bay City.—Where plaintiff contracted with defendant city to lay concrete foundation for pavement before Sept. 22, but did not complete it until later, the city did not become liable to pay for a portion made defective by freezing because its inspectors were present and permitted it to be laid, and it made payment to plaintiff upon estimates which included it in the work done by him.—Supreme Court of Michigan, 125 N. W. R., 398.

Contracts for Buildings—Ratification

Hoeppner-Bartlett Co. vs. City of Rhinelander.—The requirements of the statutes for letting contracts for construction of schoolhouses of a city of the fourth class not having been complied with, in the absence of compliance with one of which, Statutes 1898, provides no such contract shall be valid, there can be no ratification of the acts done, making the city liable as on contract, by its acceptance of the school building.—Supreme Court of Wisconsin, 125 N. W. R., 454.

Billboards—Delegation of Legislative Authority

Curran Bill Posting & Distributing Co. vs. City of Denver.—Denver City Ordinances, delegating to the Fire and Police Board discretion to revoke or decline to renew any billboard license, was invalid under the rule that City Council cannot commit the exercise of its legislative powers to property owners or other private owners, nor can it intrust such power to the caprice of any of its officers or reserve to itself in its administrative capacity an absolute or despotic power to grant or refuse permits of the character in question in particular cases, and in the absence of or without reference to prescribed and duly enacted rules and regulations.—Supreme Court of Colorado, 107 P. R., 261.

Changing Grade—Measure of Damages

Smith vs. City of Butte.—The objection to a question, asked by plaintiff in an action for damages for the raising six feet of the grade in front of his lot and house, What would be the reasonable charge for raising the house six feet? not having been based on the ground that it did not comprehend the proper measure of damages, such objection is not available on appeal; there being no evidence that plaintiff's house was not constructed prior to passage of the ordinance raising the grade.—Supreme Court of Montana, 107 P. R., 409.

Eminent Domain—Right to Exercise

Wise vs. Yazoo City.—Yazoo City charter, authorizing the acquisition by the city of property for streets, sewerage, water works, electric light lines, gas mains, street railways, places of quarantine, and buildings required for quarantine, or "any other purpose," does not confer on the city the power to condemn land for a spur track, from a railroad to its power house, for the generation of power for its water works, electric light, sewerage, and street railway systems, in order to reduce the expense of fuel, since the city may operate all the utilities without the use of the spur track; the quoted words only referring to the powers conferred specifically, and making the same broad enough to accomplish the specific purpose.—Supreme Court of Mississippi, 51 S. R., 453.

Constructing Streets—Injuries to Abutting Property Owners

Kunst v. City of Grafton.—If in so constructing and grading one of its streets on a hillside, a municipal corporation build an embankment in front of an abutting lot and thereby increases the lateral pressure thereon, which, combined with the increased flow of the surface water, caused by such street improvement, or by the water collected in holes or in drains or gutters and cast in a body on such lot, causes such lot to slip and to destroy the buildings thereon, such corporation is liable in damages to such lot owner for the consequential injuries to his property.—Supreme Court of Appeals of West Virginia, 67 S. E. R., 75.

Patented Pavements—Competitive Bidding

Milner et al. vs. City of Trenton and United Paving Company.—The contract was attacked by abutting property owners and an unsuccessful bidder for the work, on the ground that the specifications for the work prevented competitive bidding. It was urged that the specifications required the purchase of a patented article or an article produced only by secret process, and that the patents and secrets were the monopoly of a single person. The work included a concrete foundation four inches deep and a bitulithic wearing surface two inches thick, this wearing surface being covered by patents. The specifications described the process for constructing the wearing surface. The court said, therefore, that a portion of the work could not be executed by a contractor unless he owned the secrets and patents and controlled the appliances and apparatus used therein, or unless he bought the bitulithic materials already prepared. The patented mixture was offered to contractors at a fixed price, in accordance with a letter filed by the owners, Warren Brothers Company, with the City of Trenton. The court stated that, "It is the equivalent of selecting a patented pavement and inviting competitive bidding for furnishing this pavement * * *. The weight of authority elsewhere is that a city acting in good faith has that privilege. This is the rule adopted in this State." The purpose of these specified processes, in the words of the formula of Warren Brothers Company, were probably for the purpose of making it reasonably certain that the wearing surface furnished would be the genuine bitulithic article. We are of the opinion, therefore, that under the decisions in this State already alluded to, and the circumstances of the case, the application for a writ should be denied."—Supreme Court of New Jersey.

Building Ordinance—Public Health—Vaults

Treasy vs. City of Louisville et al.—Louisville Building Ordinance requires that any existing vault on property abutting on a public sewer shall be filled after 60 days' notice to the owner by the Inspector of Buildings, chief of the Health Department, or Chief of Police. Held, that such ordinance made it the duty of the officers named to give all persons having vaults so situated notice to fill the same, and was therefore not objectionable as delegating to such officers a duty which should have been exercised by the Council, nor as authorizing them to discriminate as to whom notice should be given.—Court of Appeals of Kentucky, 125 S. W. R., 706.

Sidewalks—Unplatted Ground

City of Salem ex rel. Roney et al. vs. Young—Revised Statutes of 1899 authorizes fourth-class cities to open and improve streets, make sidewalks, etc., and gives them exclusive control of all streets within their limits. Section 5981 authorizes them to repair sidewalks and levy special assessments on all lots and pieces of ground abutting such improvements. Held, that an unplatted tract within the limits of a fourth-class city can be taxed for the construction of sidewalks, provided such exercise of the taxing power is reasonable under the circumstances; the word "lot" used in Section 5981 including tracts or parcels of land, even if the section did not authorize assessments on all pieces of ground.—Springfield Court of Appeals, Missouri, 125 S. W. R., 857.

Police Power—Dog Licenses

Village of Litchville vs. Hanson.—An ordinance making it unlawful for any person to keep, own or harbor within the village of Litchville any dog without first having obtained a license therefor, and imposing a fine for a violation of the ordinance, and authorizing the destruction of any dog found at large on any of the public streets, alleys or grounds of the village, upon which license shall be unpaid, is valid and constitutional.—Supreme Court of North Dakota, 124 N. W. R., 1119.

Indebtedness—Necessary Expenses

Jones vs. City of New Bern.—The cost of maintaining, repairing and paving the public streets of a city is a necessary expense in respect to the municipality's power to incur indebtedness.—Supreme Court of North Carolina, 67 S. E. R., 173.

Taxation of Railroads—Rolling Stock

City of Tyler vs. Coker.—Constitution declares that all railroad property within the limits of any city shall bear its proportionate share of municipal taxation, and, if not previously rendered, the city authorities shall have power to require its rendition and collect the usual municipal tax thereon. Section 8 declares that property of railroad companies shall be assessed and taxes collected in the several counties in which the property is situated, including so much of the roadbed and fixtures as shall be in each county; and that the rolling stock shall be assessed in gross in the county where the principal office of the company is located, and the county tax paid on it shall be apportioned by the comptroller in proportion to the distance the road may run through any such county among the several counties through which the road passes, as a part of their assets. Held that, under Revised Statutes 1895, providing for the general taxation of the rolling stock of railroad corporations, and providing that only property situated within the limits of a city is taxable by it, a city containing the principal office of a railroad company was not, for that reason, authorized to levy municipal taxes on all the railroad's rolling stock, only a small portion of which would necessarily be within the city on the 1st day of January of each year; the term "lying or being within the limits of any city or incorporated town," etc., when applied to tangible movable property, meaning only such property as is actually and physically within the limits of the city.—Court of Civil Appeals of Texas, 124 S. W. R., 729.

Drains—Damages—Benefits

Drake vs. City of Bosworth.—Where plaintiff's lots north of an alley were used for a gallon house and gristmill, while his lots on the south side of the alley, directly opposite those on the north side, were used for a dwelling, they were wholly separate, so that benefits to the lots north of the alley by the construction of a drain in the street could not be considered in determining the damages thereby to the lots south of the alley, though the fact that the lots lay on opposite sides of the alley would not of itself make them separate tracts for the purpose of assessing damages and benefits, their use for different purposes being controlling.—Kansas City Court of Appeals, Missouri, 124 S. W. R., 570.

Defective Sidewalks—Instructions

Raether vs. Town of Mentor.—In an action against a town and an abutting owner for injuries caused by a defective sidewalk plank in front of a building being constructed by the lot owner, where the jury found that the plank was loose, and that a sufficient length of time had elapsed to enable the town to discover and remedy the defect, any error in instructing that the lot owners were not responsible for the negligence of the building contractor in removing the sidewalk was harmless to the town, unless it could be said that a finding inconsistent with the finding of the town's negligence would have been made had the contractor's negligence and the owner's liability therefore been submitted.—Supreme Court of Wisconsin, 125 N. W. R., 469.

Waiver of Provision for Deduction for Delay

Coryell et al. vs. Dubois Borough.—A borough cannot claim a deduction from the contractor's compensation under a contract providing for a deduction for each day of delay after a time specified, where it made no objection to the delay, and by its conduct led the contractor to believe that such provision would not be enforced.—Supreme Court of Pennsylvania, 75 A. R., 25.

Elections—Officers De Facto

Stuart vs. Inhabitants of Ellsworth.—Where the returns upon the warrants for an election of Mayor and Aldermen are defective, but the persons chosen Mayor and Aldermen at such election proceed to organize and to perform their respective duties as such, under color of title and claim of right, with the acquiescence of the citizens, they are "officers de facto." In controversies to which he is not a party, the title to his office of an officer de facto and his acts therein cannot be questioned.—Supreme Judicial Court of Maine, 75 A. R., 59.

NEWS OF THE SOCIETIES

Second National Conference on City Planning and Congestion.—All those intending to be present at the conference—Rochester, May 2-4—are urged to write the Secretary, Flavel Shurtleff, 19 Congress street, Boston, as soon as possible, stating when they expect to arrive in Rochester. The banquet of Tuesday evening will be served for \$3 a plate. Places should be reserved.

New England Water Works Association.—At a meeting of the executive committee of the association, April 13, it was voted that in order to better facilitate the arrangements for accommodations, the date of the annual convention for the present year to be held at Rochester, N. Y., be changed to September 21-23. Willard Kent, Narragansett Pier, R. I., is secretary.

Biological Society of Washington, D. C.—In an illustrated lecture in the lecture hall of George Washington University Dr. John B. Smith, State Entomologist of New Jersey, described the work of mosquito extermination done under his direction. Dr. L. O. Howard, entomologist, Department of Agriculture, described the habit of the mosquito.

Harvard Engineering Society.—At the third regular meeting of the society, April 15, for the year, a visit was made to the foundation of the Municipal Building, New York City. At the evening meeting at the Harvard Club T. Kennard Thomson, consulting engineer, delivered a stereopticon lecture on difficult foundation work. Charles Gilman, 90 West street, New York City, is secretary.

Southern Appalachian Good Roads Association.—The good roads meeting at Hendersonville, N. C., March 30, held under the auspices of the Southern Appalachian Good Roads Association, was attended by 400 delegates, representing many towns and counties throughout North Carolina and Tennessee. The association accepted the invitation of the delegates from Knoxville, Tenn., to hold the next meeting in that city, which will be held some time in the early fall. The meeting adopted resolutions asking for State aid in road building to the amount of \$250,000 annually in each State, expressing the belief that convicts should be put on the highways, and recommending that every county employ a highway engineer.

York Society of Engineers.—An organization of 150 members, including electrical, mechanical, architectural and other engineers and their employees was formed April 13 in the room of the Manufacturers' Association. Permanent headquarters will be secured and meetings will be held on the second Tuesday evening of each month. The following officers were elected: President, Prof. Charles H. Ehrenfeld; vice-president, Edward Leber; secretary, H. A. Delano; treasurer, Howard Fink; directors, W. B. Rawson and E. S. Hippey.

Taxpayers' Association of Paterson, N. J.—At a meeting April 2 a resolution was unanimously adopted, asking the city authorities to appropriate more money for street cleaning and have the work done by contract. In accordance with the suggestion of E. H. Lambert, a legislative committee will be formed to watch legislation of interest to the city. It was announced that Judge Benjamin Lindsay, of Denver, would appear in the Paterson Opera House, April 27, under the auspices of the association, and deliver a lecture on civic betterment.

City Solicitors' Association of Ohio.—At a meeting at Columbus, O., April 18, City Solicitor Edgar L. Weinland was elected president of the Association of Ohio. F. A. Bolton, of Newark, was elected vice-president, and D. F. Mills, of Sidney, secretary and treasurer. The principal topic of discussion was the Paine law and its interpretation.

Utah Society of Engineers.—The fourth annual banquet and meeting of the Utah Society was held April 15 at the Commercial Club. The program follows: Address and introduction of toastmaster, President J. F. Merrill; "Salient Points in Smelter Building," C. H. Repath; "Hydroelectric Development," Leonard Wilson; "Irrigation in Idaho," Alexander McPherson; "Power Plants in Utah," Owen H. Gray; "The Pleasures of Membership," Fred J. Pack, Ph.D.; "The Commercial Engineer," B. A. Mendenhall; "Matrimonial Engineering," C. P. Overfield; "The Geological Engineer," Horace W. Sheley. Officers were elected for the ensuing year as follows: President, O. A. Hornold; first vice-president, C. H. Repath; second vice-president, F. E. Arnold; secretary, W. C. Ebaugh; treasurer, B. F. Tibby. The entertainment committee remains the same as for last year, as follows: M. D. Grosh, R. R. Lyman and R. E. Caldwell.

Tacoma Park Citizens' Association.—H. C. Eddy, secretary of the District railway commission, delivered an illustrated lecture on "Electric Railway Development."

Public Health Organizations of California.—At the call of Dr. William F. Snow, secretary of the State Board of Health, representatives of the following societies met at Sacramento, April 28: State Tuberculosis Association, San Francisco Tuberculosis Association, Alameda County Tuberculosis Association, California Playground Association, San Francisco Milk Commission, Oakland Milk Commission, California State Association for the Study and Prevention of Private Diseases, Red Cross Society, White Crusaders, Salvation Army, Juvenile Courts of Los Angeles and Sacramento, and the various districts of the California Federation of Women's Clubs.

Municipal Engineers of the City of New York.—The next regular meeting will be held on Wednesday, April 27, 1910, at 8.30 P. M., in the Engineering Societies' Building, 29 West 39th street, Manhattan. A paper entitled, "The Development of Jamaica Bay Into a Harbor for New York City," will be presented by William G. Ford, M. M. E. N. Y., Consulting Engineer and member of the Jamaica Bay Improvement Commission. The paper will be illustrated.

The committee on inspections announces an inspection Saturday, April 30, to the United States Navy Yard, Brooklyn. Members will meet at the Sands street gate at 2 p. m. Points of interest: Battleship Florida, nearly ready for launching; new dry dock, machine shop, and foundry.

It is proposed to have an inspection trip for members, their families and friends, to Albany and Schenectady, visiting the works of the General Electric Company, the filtration plant at Albany, and the large lift locks at Cohoes; leaving New York Friday evening, May 27, on the People's Line, and returning Saturday, Sunday, or possibly Monday evening on the same line. The fare will be \$6 for the round trip, including all transportation, stateroom and four meals on the boat. As the committee has to guarantee 100 tickets, members are requested to notify at once whether they will or will not be able to attend. C. D. Pollock is secretary.

Calendar of Meetings

- April 26-30.** **American Water Works Association.**—Thirty-third annual convention, Grunewald Hotel, New Orleans, La.—J. M. Diven, Secretary, Charleston, S. C.
- May 2-4.** **National Conference on City Planning.**—Second annual conference, Rochester, N. Y.—Flavel Shurtleff, Secretary, 19 Congress Street, Boston, Mass.
- May 4.** **American Society of Civil Engineers.**—Regular meeting, Society House, New York.—Charles Warren Hunt, Secretary, 220 W. 57th st., New York, N. Y.
- May 5-7.** **American Electrochemical Society.**—Annual Meeting, Pittsburg, Pa.—Jos. W. Richards, Secretary, South Bethlehem, Pa.
- May 6-7.** **Appalachian Engineering Association.**—Annual meeting, Winston-Salem, N. C.—Harry M. Payne, Secretary, Morgantown, W. Va.
- May 17-19.** **National Fire Protection Association.**—Annual Meeting, Chicago, Ill.—Franklin H. Wentworth, Secretary, 87 Milk Street, Boston, Mass.
- May 23-28.** **National Electric Light Association.**—Annual meeting, St. Louis, Mo.—T. C. Martin, Secretary, 29 W. 39th st., New York.
- May 27-29.** **Louisiana State Firemen's Association.**—Fifth Annual Convention, Lafayette.—Wm. J. Kleinpeter, Secretary, Gretna, La.
- May 31-June 3.** **American Society of Mechanical Engineers.**—Spring meeting, Atlantic City, N. J.—Calvin W. Rice, Secretary, 29 W. 39th st., New York.
- June 1-4.** **Engineers' Society of Pennsylvania.**—Second Annual Convention, State House, Harrisburg, Pa.—Edward R. Dasher, Secretary.
- June 2-3.** **North Carolina Municipal Association.**—Annual Convention Winston-Salem, N. C.—O. B. Eaton, Secretary, Mayor Winston-Salem, N. C.
- June 21-24.** **American Society of Civil Engineers.**—Annual Convention, Chicago, Ill.—Charles Warren Hunt, Secretary, 220 W. 57th st., New York City.
- June 22.** **New England Water Works Association.**—June Outing, Providence, R. I.—Willard Kent, Secretary, Narragansett Pier, R. I.
- June 21-23.** **Indiana Municipal League.**—Annual Convention, Richmond.—Baltz A. Bescher, Secretary, Richmond, Ind.
- June 22-24.** **American Institute of Chemical Engineers.**—Semi-annual meeting, Niagara Falls, N. Y.—J. C. Olsen, Secretary, Polytechnic Institute, Brooklyn, N. Y.
- June 23-25.** **Society for the Promotion of Engineering Education.**—Annual meeting, Madison, Wis.—Henry H. Norris, Secretary, Cornell University, Ithaca, N. Y.
- June 27-30.** **American Institute of Electrical Engineers.**—Annual convention, Jefferson, N. H.—R. W. Pope, Secretary, 33 West 39th st., New York City.
- June 28-July 1.** **American Society for Testing Materials.**—Annual meeting, Atlantic City, N. J.—Edgar Marking, Secretary, University of Pennsylvania, Philadelphia, Pa.
- June 30-July 1.** **American Society of Heating and Ventilating Engineers.**—Semi-annual Meeting, St. Louis, Mo.—W. M. Mackay, Secretary, P. O. Box 1818, New York, N. Y.
- August 23-26.** **International Association of Fire Engineers.**—Annual Convention, Syracuse, N. Y.—James McFall, Secretary, Roanoke, Va.
- August 23-26.** **League of American Municipalities.**—Annual Convention, St. Paul, Minn.—David E. Heineman, President, City Hall, Detroit, Mich.
- September 21-23.** **New England Water Works Association.**—Annual meeting, Rochester, N. Y.—Willard Kent, Secretary, Narragansett Pier, R. I.
- October 11-16.** **American Society of Municipal Improvements.**—Seventeenth annual convention, Erie, Pa.—A. Prescott Folwell, Secretary, 239 W. 39th st., New York, N. Y.

PERSONALS

BUELL, A. B., Burlington, Vt., has been named as Fire Commissioner and E. E. Morgan, Electric Light Commissioner.

CARLSON, SAMUEL A., Jamestown, N. Y., has been elected Mayor.

DICKERSON, EDWARD, Chester, Pa., has been elected President of Council.

DION, CHARLES P., Burlington, Vt., has been elected President of Council.

FAWCETT, A. V., Tacoma, Wash., has been elected first Mayor under the Commission Plan of Government.

GAFFORD, FRANK H., Birmingham, Ala., has been elected Street Commissioner.

HEMENWAY, PROF. H. D., Cambridge, Mass., has been engaged for two weeks by the Kansas Agricultural College to visit towns and lecture on the decoration of public places and homes.

HIBBARD, GEORGE A., former Mayor of Boston, Mass., who was defeated for re-election by Mayor John F. Fitzgerald, has been named by the latter as City Collector, to succeed Charles R. Brown.

HOUGH, BENJAMIN K., Boston, Mass., has been appointed Boston Sales Manager for the Wisconsin Engine Company with offices in the Oliver Building, Boston.

HOWES, WILLIAM J., member of the Board of Park Commissioners of Holyoke, Mass., has resigned in order to devote his entire public attention to the Playground Commission, of which he has been elected Chairman; Frederick A. McLane has been named as his successor on the Park Board by Mayor A. P. Avery, and former Alderman Richard A. Dietz will fill the vacancy on the Board caused by the death of M. Otto Dreikorn in an automobile accident last November; Former Alderman Moritz E Ruther has been named as a member of the Playground Commission.

JACKSON, WILLIAM, City Engineer of Boston, Mass., has been reappointed.

KIBBLE, CHARLES H., Cleveland, O., has resigned as Superintendent of the City Lighting Department.

KINKEAD, MISS ELIZA, Lexington, Ky., has been appointed by Mayor Skain as member of the Board of Park Commissioners.

KNOLLENBERG, GEORGE J., Councilman-at-large, and former City Clerk of Richmond, Ind., has resigned and will go into the bakery and confectionery business in Oxford, O.

LITCHFIELD, PARKER R., City Treasurer of Medford, Mass., died last week, aged 84 years. He had served Medford as Town Clerk and Treasurer and City Treasurer for 48 years, and for 13 years prior had served as Clerk in the Suffolk County Registry of Deeds at Boston.

LOVETT, GEORGE F., Berlin, N. H., has been appointed City Engineer; Patrick J. Smyth, City Clerk; William Beach, Chief of Fire Department.

MILLER, JOHN F., Mayor of Seattle, Wash., until recently, has become general counsel for the Sullivan & Considine theatrical circuit, supervising the entire legal business of the big syndicate throughout the United States, and will receive double the salary paid him as Mayor of Seattle.

ROSENBERG, DAVID, McKeesport, Pa., has been elected President of Select Council.

ULMAN, HIRAM M., Williamsport, Pa., has been elected President of Select Council, and Harry W. Pyles President of Common Council.

WILSON, WILLIAM A., Houston, Tex.; George H. Hermann and Edwin B. Parker have been appointed Park Commissioners.

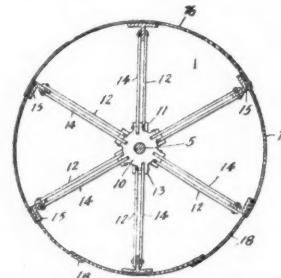
NEW COLORADO MAYORS

Aguilar—A. L. Lindsey, re-elected.
Ault—J. K. Houghton.
Basal—Dr. Kennedy.
Breckenridge—D. W. Fall.
Brighton—Charles S. Stewart, re-elected.
Brush—N. D. Weaver.
Carbondale—W. J. Pings, by one vote.
Central City—Thomas Cody.
Cedar Edge—E. D. Smith.
Debuque—Lambert Sternberg.
Dillon—George E. Smith, uncontested.
Eaton—A. H. Myers.
Evans—Harry Behrens.
Fairplay—C. A. Wilkin, uncontested.
Fowler—Wm. Berry, re-elected, uncontested.
Frisco—J. W. Shaw.
Fruita—W. A. Merrill.
Glenwood Springs—E. E. Drach, re-elected.
Grand Valley—J. D. Hurlburt.
Granada—C. D. Baldwin over C. B. Wade by two votes.
Gunnison—E. M. Collins.
Holly—J. S. McMurry re-elected for fifth consecutive term.
Hotchkiss—W. A. Duke.
Kersey—G. W. Racer.
Kokomo—W. A. Thompson, uncontested.
Kremmling—D. B. Graham.
Lake City—John F. Maurer.
Lamar—C. M. Lee.
Louisville—William Austin.
Manzanola—W. L. Clowrey.
Manitou—W. R. Kirby.
Marbledale—Mayor Pratt re-elected.
Montezuma—F. C. Burke, uncontested.
Monument—Van D. Fimple.
Morrison—John B. Walker, Jr., re-elected.
Nederland—A. J. Thomas.
Olathe—Dr. C. E. Lockwood.
Paonia—Clarence Nelson.
Plattsburgh—George A. Hodgson.
Raton—Dr. James J. S. Huler.
Ridgway—L. B. Kemp.
Robinson—Charles J. Senter; first election held in eleven years.
St. Elmo—Dan Clark.
Silver Plume—J. G. Catren.
Silverton—B. C. Allen, uncontested.
Steamboat Springs—Clay Tice, uncontested.
Sulphur Springs—J. F. Brown.
Walsenburg—J. B. Dick.
Wray—William Helndel.
Windsor—C. A. Yancy.

PATENT CLAIMS

952,869. COLLAPSIBLE FORM FOR BUILDING CULVERTS. Charles A. Besser, Mount Pleasant, Ia. Serial No. 466,038.

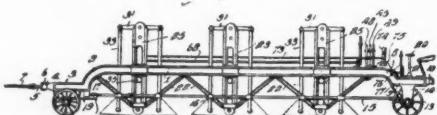
A collapsible form including a plurality of arcuate plates changeable in curvature



to vary the diameter of the form, one plate having a curvature approximating the maximum diameter of the form, and another plate approximating the minimum diameter thereof.

953,406. ROAD GRADER. William H. Beam, Purcell, Okla. Serial No. 499,316.

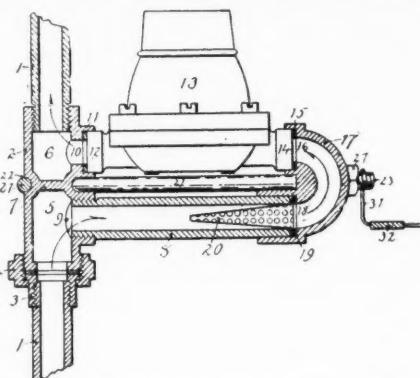
In a road grader, the combination of a frame, guideways mounted on the frame, standards movable in the guideways, shovels pivotally connected to the standards, a



rack on each of the standards, pinions for moving said standards independently, a walking beam pivotally mounted on each standard, connecting rods leading from the walking beams to the shovels, and means for operating the walking beams for independently tilting the shovels.

953,505. WATER-METER CONNECTION. George B. Bassett, Buffalo, N. Y. Serial No. 444,449.

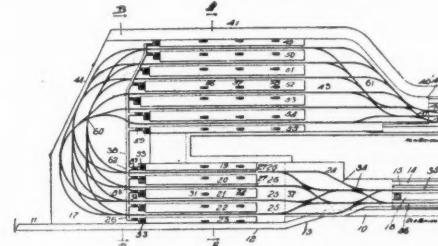
The combination with a special fitting mounted in a service pipe and having an opening and a separate compartment at each end to which the service pipe is attached, two side outlets both facing the same way and each communicating with one of said compartments, and a water



meter having inlet and outlet spuds in axial alignment on opposite sides of said meter, one spud being attached to one of said side outlets, of piping lying wholly outside of said meter and connecting the other spud of said meter to the other side outlet of said fitting; substantially as and for the purpose described.

953,169. TERMINAL PASSENGER STATION AND OTHER RAILWAY STRUCTURE. Andrew M. Irving, New York, N. Y., assignor of one-half to John C. McFarland, Chicago, Ill. Serial No. 482,500.

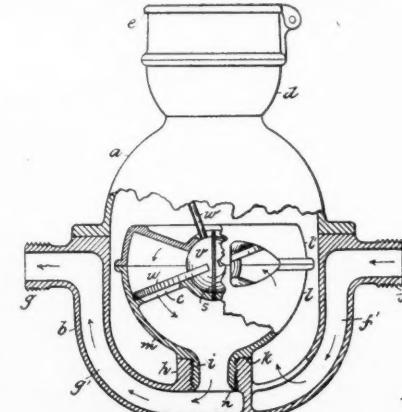
In a railway passenger station the combination of two groups of platforms, each



group having associated therewith a suitable number of tracks adapted to communicate with the tracks of the other group and one of said groups having a greater capacity for receiving and discharging passengers than the other, the equipment of the system being such that the platforms of the group of the larger capacity may be used either as a receiving or as a discharging station.

953,200. WATER METER. Ernest E. Gamon, Newark, N. J. Serial No. 512,512.

A water meter comprising an inclosing case, securing means in the bottom of said case provided with a discharge port, a disk chamber circumferentially free from said inclosing case, having inlet and dis-



charge ports and provided with means coacting with said securing means for securing said chamber to said inclosing case, the discharge port arranged in said disk chamber to coat with the discharge port arranged in the securing means in said inclosing case.

TRADE NOTES

Cast-Iron Pipe.—Chicago: There is a good run of orders from smaller municipalities, as well as from the jobbing trade, and the railroads are steady buyers of culvert pipe. Quotations: 4-inch, \$28.50; 6- to 12-inch, \$27.50; 16-inch and up, \$26.50. Birmingham: Prices have not declined, but under some circumstances are shaded slightly. Quotations: 4- to 6-inch, \$24; 8 to 12-inch, \$23; over 12-inch, average \$22. San Francisco: There is more inquiry this Spring for cast-iron pipe than for several years, and the volume of business booked is constantly increasing. Los Angeles is ordering heavily for the new water system. New York: Some manufacturers are stiffening up their prices for the small sizes. Quotations: 6-inch, carloads, \$25.50 to \$26.

Lead.—Market dull and unchanged. Quotations: New York, 4.35 to 4.40c.; St. Louis, 4.20 to 4.25c.

Motor-Driven Pump.—The city of Hancock, Mich., is preparing to put in service this summer a new motor-driven Goulds pump, recently purchased.

Municipal Plants.—The American Light & Water Company, whose main office is here, has recently taken orders for the construction and equipment of a number of water works, sewage and electric power plants in the Southwest, including a large contract to be executed for Silver City, N. M.

Street Flushing Machine.—Plans have been completed for the new plant of the D. Connelly Boiler Company, which will be built adjoining the Nickel Plate tracks on East Collamer street, in East Cleveland, and contracts will be let and work started shortly. The main building will be a shop for boiler, tank and other plate works, 140 x 190 ft. There will be a 60-ft. center span and two 40-ft. side spans. The center span will be equipped with a 30-ton electric crane, and each side span with a 10-ton crane. In addition, there will be a power house and forge shop, 50 x 200 ft. An engine and generator will be required, but the capacity of the power plant has not yet been decided upon. Plans for the plant have been prepared by John W. Seaver, engineer, Cleveland.

Electricity for Crushing Plant.—Owing to the complete electrification of its plant at McCook, Ill., the United States Crushed Stone Company, Chicago, is disposing of a large quantity of steam-driven machinery which was newly installed two years ago, finding that economy dictates entire dependence upon motors for operating everything in and about the works.

Rotary Dryer.—The Indian Refining Company, which has a plant at Georgetown, Ky., for treating Fuller's earth, will complete one this spring at Lawrenceville, Ill. Among the equipment installed will be a 50-ft. rotary dryer, similar to those used in cement plants, and a large rotary cooler.

Water Works Supplies.—An opportunity exists for American manufacturers to supply cast iron mains, gates, valves, hydrants, etc., for water works to be constructed in the city of Bangkok, Siam. Information can be obtained through the Siamese Legation at Washington, a fee of \$1.25 being required for copy of specifications.

Contracting Company Reorganizes.—The name of O'Brien & Hollihan Contracting Company, of Syracuse, N. Y., has been changed to Kelley Brothers Contracting Company. The company is now at work on contract 18 on the New York barge canal.

Technical Auditing.—The Universal Audit Company, Singer Building, New York, has been formed to cover the entire field of commercial and technical organization and service, by organizing and investigating both the financial management and technical service of industrial concerns. Such independent reports are often as important for companies contemplating increased capitalization as those not yet engaged in business. The general manager is Mr. W. M. Williams, who has been connected with the organization and management of several large companies, including the American Steel & Wire Company, the American Steel Hoop Company and the American Can Company.

Wheelbarrows and Construction Cars.—Of the larger Columbus, Ohio, factories none has made greater records lately than the Kilbourne & Jacobs Manufacturing Company. The shops are now being operated practically to capacity. The company expended something like \$400,000 in improvements during the period of depression in 1908 and 1909, and while all departments were on reduced time. The wisdom of that expenditure is now being made apparent. Much of the appropriation for improvements was expended in the new car construction department, which has grown to be an important feature of the company's business. Orders for steel plantation and construction cars are especially heavy.

Wagon Tires.—Wagon makers of the United States are advised by Special Agent John M. Turner, San Juan, Porto Rico, to figure on the new tire regulations which go into effect Oct. 1. The regulations for four-wheeled wagons require a 2-inch tire up to 2000 pounds, a 3½-inch tire between that and 3500 pounds, and a 4-inch tire for capacity beyond 3500 pounds.

Fire Engine Test.—The new fire engine, which recently arrived at Key West, Fla., from Cincinnati, has been tested. The machine is a fourth size Ahrens' Continental engine, with a capacity of 500 gallons a minute. The first test was made at the corner of Duval and Front streets, under the direction of John P. Ahrens, secretary of the company. One hundred pounds of steam was raised in seven minutes. A single stream was thrown at first, and then two streams were tried. After this the two streams were Siamesed; with this combination a stream was thrown 186 feet against a strong breeze. The second test was conducted at the county courthouse. A long line of hose was laid and a heavy stream of water was thrown over the water tank. The tests were made in the presence of the fire committee and Fire Department officials, who complimented Mr. Ahrens on the showing of the engine.

Fire Auto.—The new 60-horsepower combination automobile truck and chemical for the fire department has been received from the Knox Automobile Company, Springfield, Mass., and has been put in commission at the Court street engine house.

Asphalt.—The Standard Asphalt & Rubber Company, of Chicago, is erecting a one-story factory building 55 x 144 feet at Thirty-seventh and Wall streets at a cost of \$12,000.

Conveying Belt.—The Robins Conveying Belt Company reports extraordinary progress in the way of new business within the last few months. Thomas Robins, the founder and president of the company, states that the company has done as much business in the last three months as it did during the entire year of 1909.

Large Sewer-Pipe Plant.—Buildings costing over \$300,000 are being planned in the offices of the F.-P. Construction Company, Euclid Point Building, Cleveland, O., for a new company headed by H. A. Robinson, of Akron, which is to manufacture clay sewer pipe on sixty-six acres of land recently purchased in Newburg between Marceline avenue and Warren road. Actual work will begin within a short time. There will be six buildings in all, constructed of reinforced concrete. The largest will be 500 x 100 ft. in size and six stories high. There will be one one-story building 170 x 70 ft., one 60 x 42 ft., another 125 x 60 ft. and two smaller one-story storage warehouses. It will take nine months to complete the buildings. Active manufacturing operations will start next spring. The plant will be the largest in the world manufacturing sewer pipe. The F.-P. Construction Company will do the work.

Cement Plant.—The Atlantic and Gulf Portland Cement Company, Gadsden, Ala., are putting the finishing touches to their new plant and expect to begin operations May 15. The electrical machinery, consisting of two 1600-kw generators and about 25 motors, was installed by the Fort Wayne Electrical Works. The engines were supplied by the Hardie-Tyne Manufacturing Company, Birmingham, Ala.

Paving Company Changes Headquarters.—John F. Brooks, formerly of Grand Rapids, Mich., has headquarters in Fort Wayne, Ind. The Brooks Construction Company will endeavor to cover the northern part of this State. Mr. Brooks has an office in the Shoaff Building and he will soon make arrangements for caring for the implements and other machinery incident to the work of building roads, sidewalks and doing all sorts of concrete work. The company will make a specialty of macadam roads. Interested in the new company are three or four local stockholders.

Lamp Posts.—The Elmer P. Morris Company, 90 West street, New York, manufacturers of lamp posts and lighting specialties for exterior work, are erecting a factory at Elizabethtown, Pa., having several times the capacity of the old one at Newark, N. J. The company has sufficient orders on hand to keep the new factory running for several months.

Dust-laying.—The Calcid Process Company, Sears Building, Boston, Mass., is now prepared to fill orders for their odorless and stainless dust-layer from all parts of the country. The company has opened a western office at 140 East Lake Street, Chicago.

Quarry Machinery.—The Columbia Quarry Company, Millstadt, Ill., is arranging its crushing plant for a larger output, including the installation of improved elevating machinery.

Crushing Plant.—A new crushing outfit, with gyrating breaker, elevator, screens, etc., will be installed this spring by James N. Blair, Bloomington, Ind., who has heretofore operated a jaw crusher plant.

Crushing Plant.—A complete crushing plant, with breaker, elevator, screen and motive power, has been purchased by Joseph H. Ward's Son, Ridley Park, Pa.

Crushing Plant.—The Ohio & Michigan Stone and Gravel Company, Toledo, Ohio, will add to its crushing plant equipment, including the installation of a 12-foot rotary screen.

MUNICIPAL APPLIANCES

Portable Asphalt Paving Plant

A PORTABLE asphalt paving plant designed for use on the street where paving operations have been going on has been placed on the market by the Link Belt Company, Chicago. This return to the methods that were used years ago in constructing asphalt pavements in Europe has been noticeable in the past few years, several plants of the kind having been devised, and is not without a cause. The rock asphalt of Europe requires a temperature of about 200 F. degrees for mixing. American asphalt pavements made of the asphalt formerly most used required a temperature of 300° F. or more. Hence the need of a large stationary plant with large furnaces. Some of the American asphalt used in recent years can be mixed at considerably lower temperatures. Moreover the increased use of stone in the surface of asphalt or asphalt macadam pavements has made it possible to operate with plants of less heating capacity. These circumstances have created a demand for a plant that will handle enough material for a reasonable day's work of a street gang although its capacity for generating heat may be less than that of an ordinary stationary or railroad plant. Several devices have been manufactured to meet the new demand. With the manufacture of a new type improvements naturally follow and ways have been found to construct a plant which in heating capacity alone far excels the performances of the first plants of the kind.

The Link-Belt Company's plant is made in two sizes. The largest is 27 ft. long, 9 ft. wide; height, 14 ft. or 20 ft., with smokestack on. The weight of the machine is 35,000 pounds, the power required to operate it, 20 horsepower, supplied by a traction engine which always accompanies the plant and moves it forward. The larger machine is rated at a capacity of 1000 square yards per day, asphaltic concrete 2 in. thick.

In general outlines the machine follows somewhat the usual type of a portable asphalt plant, the principal variations being the modifications made for the purpose of economizing heat. The

rotary dryer for stone or sand is about 12 ft. long and 4 ft. in diameter, occupies most of the space between the axles of the wheels and is above them. The fire boxes are between the wheels and are the only fire boxes in the plant. The hot air from these may be directed to and around the asphalt tanks, 3½ tons capacity, situated above the drum or may be deflected elsewhere, if not needed. The drum discharges immediately into an elevator boot. The elevator, storage bin and measuring device for the aggregate are all in one housing, which covers the mixer, situated quite low down. At the front of the machine is an exhaust fan which draws the hot gases from the furnace upward, around the dryer to the asphalt tank above, whence a fan sends them through the drum and out through a stack over the housing containing the elevator, sand bin, etc. Stone is fed into a hopper in front and carried by a special conveyor into the drum. There are platforms on each side of the machine for the convenience of men filling the tank with asphalt.

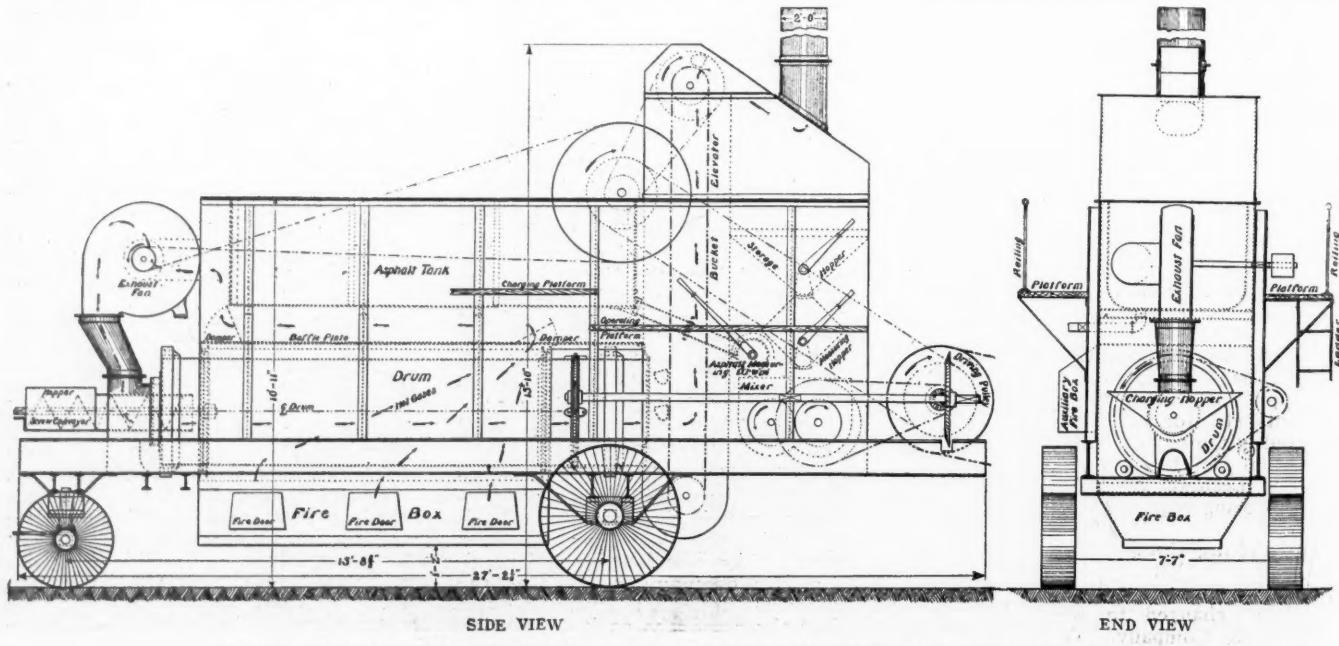
Portable Stone or Sand Dryer

A PORTABLE stone or sand dryer designed primarily for use in bituminous road construction has been placed on the market by the Ruggles-Coles Engineering Co., Hudson Terminal Building, New York. The dryer is their regular Class A dryer, 20 feet long and 48 inches outside diameter, mounted on trunnions in the usual way. The frame is substantial and is mounted on wheels with tires 8 inches wide front and 10 inches wide rear. The total weight of the portable machine is 20,000 pounds, the capacity 10 cubic yards of stone per hour, containing 5 per cent of moisture delivered at a temperature of 350 deg. F. The portable dryer shown in the cut is equipped with an oil burner, the flame being projected into the extension of the inner tube of the dryer, which is lined with firebrick for a short distance. An ordinary chain and bucket elevator is provided for feeding. Power is best supplied by an internal combustion engine mounted on the frame under the dryer. The engine has not

been put in place in the machine shown in the cut. This engine uses the same grade of fuel as is consumed by the burner and a common storage tank supplies both. If preferred, the dryer may be operated by a traction or other engine. A coal-burning furnace can also be used, but oil is generally preferable. The fuel consumption is stated to be less than one gallon per hour when operating at full capacity and the fuel efficiency over 75 per cent.

The construction of this dryer is the same as that of the regular Class A dryer, which has been on the market many years. It consists of two concentric shells. The outer cylinder is made of heavy steel plates, the longitudinal seams having butt joints with inside lapping strips. The inner shell or flue is also made of heavy steel plate and is connected with the outer cylinder at the center by six heavy cast-iron arms, solidly riveted to both cylinders, so as to hold the two shells rigidly together. Between the center and each end are two sets of swinging arms which allow for the expansion and contraction due to difference in temperature. This bevel may be arranged to deliver in the center or at the bottom. Around the outside of the cylinder are two heavy rolled steel tires riveted to the shell with heavy steel brackets. Each of these tires rest on four bearing wheels made of chilled iron, ground to a true circle. These bearing wheels are arranged in pairs on swinging arms, the latter resting on heavy cast-iron bases. On the front base are two large adjustable thrust bearing wheels to prevent the tires running off the wheels. Between the tires is fastened a heavy cast gear, driven by a pinion, shaft and pulley. An exhaust fan is placed where most convenient to drive, generally on top of the furnace, and is connected with the dryer with a suitable flue.

The heated air and products of combustion from the furnace pass through the brick-lined connecting flue into the inner shell, through this shell to the rear end, where they turn and go back through the drying material and through an exhaust fan or stack to the outer air. The material is fed through the front head into the space between the two shells, is picked up by the lifting buckets and dropped onto the inner



PLAN SHOWING CONSTRUCTION AND OPERATION OF PORTABLE ASPHALT PLANT

shell. By the revolution of the machine it is dropped again to the outer shell to repeat the operation until, due to inclination of the machine, it reaches the rear end, where it is elevated and discharged through the center of the rear head.

To meet the demand for a portable dryer where fuel efficiency is not so important and a lighter weight machine is preferred, the Ruggles-Coles Co. have mounted their Class F dryer in a manner similar to that of the A dryer shown in the cut.

This dryer has a single shell. The fuel consumption is greater than that of the other dryer, about $1\frac{1}{2}$ gallons of oil per hour, and the capacity less about 5 cubic yards per hour.

The portable dryer is intended for use in bituminous macadam construction where it is necessary to heat the stone. The stone may be mixed by hand or a concrete mixer could be rigged up to handle it. In laying macadam where the bitumen is poured over the stone, the dryer will supply hot stone or chips and enable work to be carried on in wet weather. As an auxiliary heater in an asphalt plant of limited capacity, when it is necessary to rush work, it should find a useful field.

Road Oils

THREE grades of road oils, each intended to be applied by a different method, are manufactured by the Standard Oil Company. There are: Standard asphalt road oil, Standard emulsifying road oil, and Standard macadam asphalt binder.

Standard asphalt road oil is a petroleum product containing percentages of asphalt (i. e. bitumen insoluble in petroleum naphtha) varying from 30 to 60 per cent. The proper method of applying this oil is as follows: The surface of the macadam road should first be placed in good condition by sweeping or scraping and filling ruts and holes. The oil should then be applied by means of a suitable oil sprinkler, capable of distributing the oil uniformly about six feet in width and so arranged as to enable the operator to control the flow. The oil should be sprinkled at the rate of from $\frac{1}{3}$ to $\frac{1}{2}$ gallon per square yard. The quantity depending on the nature of the road material and the amount of oil it will readily absorb. After sufficient time has elapsed for the oil to penetrate the road, then a thin covering of screenings, gravel or sharp sand should be spread over the surface to absorb any surplus oil that has not penetrated. One cubic yard of screenings should cover about 150 square yards of surface. The road should be dry and the oil applied only in warm weather.

Standard emulsifying road oil is a product containing a certain quantity of petroleum asphalt. It is emulsified in order to enable it to mix readily with water, and it requires frequent applications to produce semi-permanent surface. For the first application

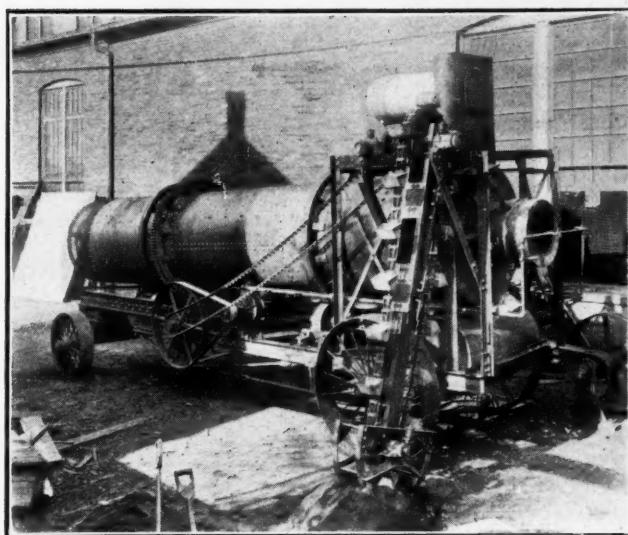
125 gallons of emulsion are mixed with 475 gallons of water in an ordinary watering cart and the street is sprinkled in the usual way. In subsequent applications from 80 to 100 gallons of emulsion are sufficient for a 600-gallon sprinkling wagon. Usually two applications are required in the first four days, but later applications serve from eight to twenty-one days, or even longer, varying with the locality and the amount of traffic. The effect of the oil is to prevent dust for a considerable period and to bind the surface material to some extent so as to permanently improve the roadway. The appearance of the surface after the emulsifying oil has been sprinkled on a road is a brownish color and does not produce the black effect characteristic of a road after treatment with an asphalt road oil.

Standard asphalt macadam binder is used in the construction of new roads or the reconstruction of old ones where a considerable quantity of new stone is needed. After the ordinary top course

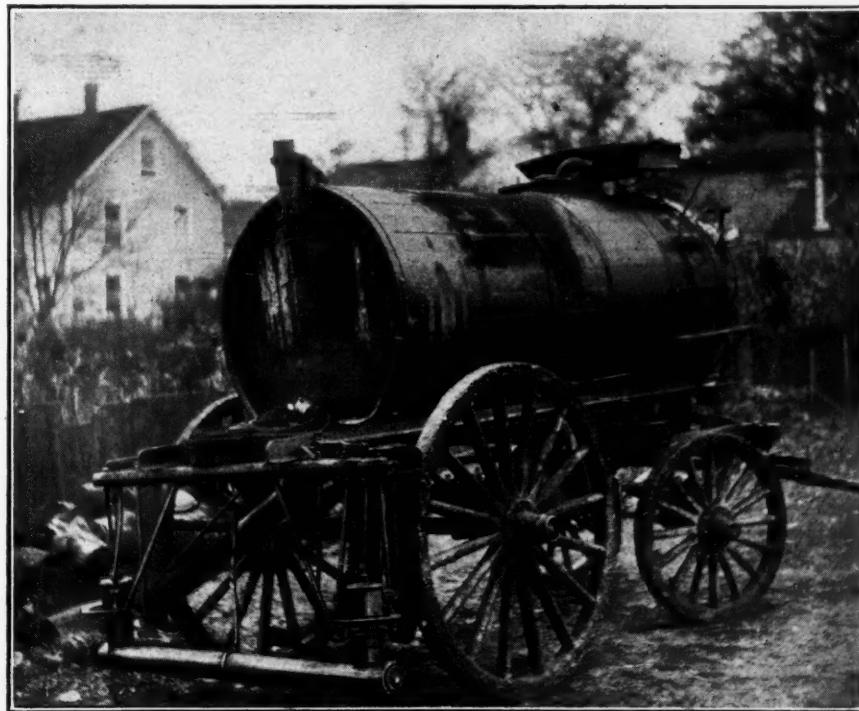
of stone of $1\frac{1}{2}$ size, or thereabouts, has been spread and rolled the binder oil is applied by means of wide-nosed hand sprinklers, a mechanical distributor, or by hose connection to an asphalt kettle. The binder should be heated to a temperature of from 300° F. to 400° F. The quantity to be used for the first application shall vary from $1\frac{1}{4}$ to $1\frac{1}{2}$ gallons per square yard of surface. Immediately after the application of the binder oil dry $\frac{3}{4}$ -inch stone should be spread over the surface to the depth of one inch and rolled in. After rolling the surface should be broomed in such a way as to remove all free stone and dust. A sealing coat of binder oil, about $\frac{1}{2}$ gallon per square yard, heated as before, is spread over the surface. After the binder oil has cooled clean $\frac{1}{2}$ -inch screenings are spread over the surface and rolled. This work should be done in dry, warm weather and no moisture should be present in the mineral aggregate when the binder oil is applied.

Cement in Sewer Construction

The limitations of cement and concrete as materials for the construction of pipe and masonry sewers are set forth in a booklet called "Sewer Facts," published by the Western Clay Products Publicity Bureau, Kansas City, Mo. The absence of the glazed surface characteristic of the clay products which gives them a sanitary value superior to the rough surface of cement is one of the principal points brought out. Results of various comparative tests of cement and clay products are given. Tests for water tightness were made by applying hydraulic pressure to sections of cement and clay pipes. The results showed the superiority of the samples of clay pipe. Another series of tests concerned the comparative resistance to the attack of acids. Solutions of various strengths of nitric and hydrochloric acid were tried, the vitrified pipe remaining unaffected and the cement pipe being badly disintegrated. The difficulty of inspecting cement work is mentioned.



PORTRAIT DRYER FOR BUILDERS OF BITUMINOUS ROADS



COMMON SPRINKLING CART FITTED FOR SPREADING OIL ON ROADS

THE WEEK'S CONTRACT NEWS

**Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage
Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Street Railways—Sanitation,
Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards**

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we can not guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREET IMPROVEMENTS				
New York.....	Monroe.....	April 29, 8 p.m.....	Cement walks, 10,000 sq. ft., driveways, curb, gutter, etc.....	T. F. B. Carpenter, Village Clerk.
Virginia.....	Norfolk.....	April 29, noon.....	Regulating and paving with smooth material 20,000 sq. yds.....	W. T. Brooke, City Engineer.
New Hampshire.....	Concord.....	April 29, 1 p.m.....	Constructing one mile of Bethlehem stone road.....	H. C. Hill, State Engineer.
Ohio.....	Cincinnati.....	April 29, noon.....	Imp. No. Bend and Burnt School House roads, Green twp.....	Fred Drehs, Clk. Co. Comrs.
Connecticut.....	New Haven.....	April 30, 2 p.m.....	Wood block paving, 5 sts.; granite, 2 sts.; bit. macadam, 1 st.	C. W. Kelly, City Engineer.
Ohio.....	Cleveland.....	April 30, 11 a.m.....	Paving bridge app'ches ov. Belt Line R.R., Bkln. & Hts. twps.	Frank R. Lander, County Surveyor.
Ontario.....	Port Arthur.....	April 30, noon.....	Paving 50,000 sq. yds. sheet asphalt or asphalt block on conc..	J. McTeigue, City Clerk.
Iowa.....	Centerville.....	May 2, noon.....	Brick paving, 25,930 sq. yds. on 5-in. concrete base, asphalt filler; 2,010 lin. ft. combined curb and gutter.....	Hall & Adams, City Engineers.
Minnesota.....	Minneapolis.....	May 2.....	Contracts 10 to 13: 4,300 lin. ft. resurfacing and graveling Road 10; repair So. Blvd.; graveling 4,000 ft. Road 28, and 1,200 ft. Nesbit Hill.....	Hugh R. Scott, County Auditor. John Carl, Jr., Boro. Sec'y.
Pennsylvania.....	Mt. Carmel.....	May 2.....	Brick paving, 15,000 sq. yds.....	C. E. Munroe, City Clerk.
Iowa.....	Oskaloosa.....	May 2.....	Brick paving, 1,600 sq. yds.....	
Iowa.....	Fort Dodge.....	May 2.....	Asphalt paving, 70,000 sq. yds. on 5-in concrete base, 1-in. bin- der, 1.5-in. wearing surface; 35,000 ft. conc. curb and gutter, 54 blocks.....	S. J. Bennett, Mayor. State Hwy. Comrs., c.o. County Clerk
Virginia.....	Bedford City.....	May 2, a.m.....	Bldg. 2 1/2 miles macad. on Bunker Hill road out of city.....	Board of County Commissioners.
Ohio.....	Canton.....	May 2.....	Brick paving, grading, etc., 1.55 miles road Tuscarawas twp., \$34,357.....	George Ball, Supt. of Streets.
New York.....	Olean.....	May 2, 8 p.m.....	Vit. brick paving, 4,100 sq. yds. on concrete base, 1,800 ft. curb.	Henry Jifkins, C.E., Mears Bldg.
Pennsylvania.....	Scranton.....	May 2, noon.....	Grading, sewerage and sidewalk paving plot of lots, inc. 24,000 cu. yds. rock and shale cut and 53,000 cu. yds. fill.....	J. G. McMillan, County Surveyor.
California.....	San Jose.....	May 2.....	Rock cut, embankment and concrete revetment; cost, \$13,000.	J. W. Haverly, City Engineer.
Indiana.....	Mishawaka.....	May 2.....	Paving 4,750 sq. yds., any hard material, on 5-in. concrete base, Mill st.....	W. H. Nichols, County Auditor.
Indiana.....	Danville.....	May 2, 10 a.m.....	Bldg. 2 gravel roads 2,000 ft. and 10,606 ft. long.....	C. A. Johnson, County Auditor.
Indiana.....	Crown Point.....	May 2, noon.....	Constructing 3 gravel roads in North Township.....	D. V. Moffett, County Auditor.
Indiana.....	Greencastle.....	May 2.....	Constructing 9,163 ft. gravel road in Jackson twp.....	Barney C. Kreager, City Secretary.
Texas.....	Sherman.....	May 2.....	Paving, any material, 21,650 sq. yds.; curb, 8,432 lin. ft.....	
Pennsylvania.....	Mechanicsburg.....	May 2, noon.....	Paving Main st. with any suitable material; 23,300 sq. yds. paving, 10,000 ft. concrete curb, exc. of st. ry. area; C. A. Bingham, Carlisle, Engr.....	
Florida.....	Jacksonville.....	May 2, 3 p.m.....	Laying sidewalks on 9 or more sts. Philip Prioleau, City Engr.	S. E. Baschore, Sec'y of Council.
Montana.....	Havre.....	May 2, 8 p.m.....	Grading and boulevarding and constructing 37,900 sq. ft. ce- ment walks, 5 Improvement Dists.; S. L. Hanley, City Engr.	H. G. Aird, Chm. Bd. Pub. Wks.
Ohio.....	Weston.....	May 2, noon.....	Brick or block paving, etc., Taylor st., from Main st. to Otsego Pike ditch.....	James Holland, City Clerk.
Indiana.....	Marion.....	May 3, 10 a.m.....	Bldg. L. M. Cole stone road, 2 miles; also John W. Keever road.	H. E. Jones, Village Clerk.
Indiana.....	Wabash.....	May 3, 11 a.m.....	Constructing 4 gravel and 2 macadam roads in Waltz twp.....	A. G. Stout, City Auditor.
Indiana.....	Vincennes.....	May 3, 2 p.m.....	Bldg. 3 gravel roads: 8,140, 8,050 and 9,383 ft. long.....	J. P. Nofzger, County Auditor.
Indiana.....	Anderson.....	May 3, 10 a.m.....	Bldg. brick road, Anderson twp., 5,403 ft. long.....	John T. Scott, County Auditor.
Indiana.....	Kokomo.....	May 3, 2 p.m.....	Bldg. Frank Jackson and Ephriam Miller gravel roads, 3 mi. each	E. P. McMahon, Chm. Co. Comrs.
Washington.....	Wenatchee.....	May 3, 5 p.m.....	Grading, 6,400 lin. ft., paving, curb, etc., Mission st.....	A. B. Easterling, County Auditor.
Missouri.....	Sikeston.....	May 3, 7 p.m.....	Macadamizing one mile Benton and Sikeston road.....	Sam. K. Sumner, City Clerk.
New York.....	Dunkirk.....	May 3.....	Paving or macadamizing and grading 9,560 sq. yds., 2 sts....	M. S. Murray, Engineer.
Oklahoma.....	Clinton.....	May 3, 8 p.m.....	Asphalt paving, 67,000 sq. yds. on 5-in. concrete base, grading storm sewers, etc.; 20,000 ft. concrete curb and gutter; 5,000 ft. concrete curb, 5,000 ft. concrete gutter.....	R. H. Heppell, City Clerk.
Indiana.....	Bloomfield.....	May 3, 2 p.m.....	Bldg. macadamized road in Center township.....	J. L. O'Hearn, City Engineer.
Indiana.....	Monticello.....	May 3, noon.....	Bldg. gravel road in Big Creek, and 3 in Liberty twp.....	Peter M. Cook, County Auditor.
Indiana.....	Brownstown.....	May 3, 10:30 a.m.....	Bldg. gravel road 28,000 ft. long in Washington twp.....	A. G. Fisher, County Auditor.
California.....	San Jose.....	May 3.....	Macadam paving, 3.5 miles, Milpitas and San Jose rds.; \$19,000.	H. W. Walker, County Auditor.
Ohio.....	Columbus.....	May 3.....	Brick, block or other suitable paving, Donaldson and other sts.	J. G. McMillan, County Surveyor.
New York.....	Buffalo.....	May 4.....	Paving 3 sts., repaving one street and avenue.....	H. S. Holtom, Dir. Public Service.
Indiana.....	Sullivan.....	May 4, noon.....	Bldg. 7,993 lin. ft. Roads Nos. 2 and 5 in Curry township.....	F. G. Ward, Comr. Pub. Wks.
Virginia.....	Lexington.....	May 4.....	Bldg. 3 macadam roads: 2.2, 3.4 and 3.5 miles long.....	Ben C. Crowder, County Auditor.
Ohio.....	Elyria.....	May 4.....	Sheet asphalt or block paving, 7,000 sq. yds.; brick, 15,200 sq. yds., all on concrete or macadam base; concrete or stone curb; tar, grout or asphalt filler; 9,800 cu. yds. excav.....	State Hwy. Comr., c.o. County Clerk.
Indiana.....	Greencastle.....	May 5, 11 a.m.....	Constructing M. E. Stewart gravel road, 2 townships.....	C. M. Theobold, City Engineer.
Minnesota.....	Duluth.....	May 5.....	Improving Vermillion road to Whiteface river.....	Commissioners of Putnam County.
Virginia.....	Martinsville.....	May 5.....	Constructing 3 miles of macadam road.....	E. G. Krahmer, County Auditor.
Connecticut.....	Bridgeport.....	May 6.....	Paving Stratford ave. with wood block, brick on steep grade.	Supervisors of Henry County.
New Hampshire.....	Concord.....	May 6, 1 p.m.....	Bldg. trap road to cost \$2,100, also 6 miles native stone road, at Wilton; \$29,000 native stone road at Winchester; 3 miles native stone road at Holderness.....	M. F. McKenna, City Engineer.
North Dakota.....	Grand Forks.....	May 6, 2 p.m.....	Grading and repaving 4 miles of County road n.w. of city.....	H. C. Hill, State Engineer.
Indiana.....	Lafayette.....	May 6, 11 a.m.....	Constructing gravel road in Wabash township.....	Hans Anderson, County Auditor.
New York.....	Albany.....	May 6.....	Improving Road No. 70, in Lewisboro, Westchester Co., 3.85 mi.	J. P. Foresman, County Auditor.
Ohio.....	Steubenville.....	May 9, noon.....	Grading, sewerage, macadamizing Bloomfield Western tpk....	S. Percy Hooker, Chm. St. Hwy. Com.
Texas.....	Abilene.....	May 10.....	Paving to cost \$150,000, on 7 specifications, with concrete and crushed rock, including vit. brick, bitu. granitoid.....	L. B. Talbot, Chm. Co. Comrs.
North Carolina.....	Winston-Salem.....	May 10, 10 a.m.....	Constructing 4 miles of macadam road.....	The Mayor.
Washington.....	Olympia.....	May 10.....	Grading, draining, macadamizing, etc., 3 State aid roads.....	J. L. Ludlow, Engineer.
Wisconsin.....	Janesville.....	May 10.....	Brick paving, 7,175 sq. yds. So. Main st.; asphalt macadam, 7,630 sq. yds., S. 3d st.; macadam, 3,600 yds.; also paving 2 sts.	Henry L. Bowby, Sec'y St. Hwy. Bd.
Ohio.....	Columbus.....	May 11.....	Grading and macadamizing 2 roads, 3,705 and 7,420 ft. long.	W. F. Carle, Chm. St. Assess. Com.
North Carolina.....	Washington.....	May 12, 7 p.m.....	Improving 6 sts. and 1 alley, 6,130 lin. ft., inc. grading, curb, gutter, bit. macadam or brick paving, cement walks, etc.....	John Scott, Chm. Co. Comrs.
New Jersey.....	Newton.....	May 12.....	Grading and macadamizing road in Sandyston twp.....	D. B. Packard, City Engineer.
Indiana.....	Brookville.....	May 12, noon.....	Improving Conroy road in Sycamore township.....	A. H. Konkle, County Engineer.
Ohio.....	Cincinnati.....	May 13, noon.....	Paving Herbst road with Medina block stone.....	Charles A. Miller, County Auditor.
Ohio.....	Cleveland.....	May 14, 11 a.m.....	Street improvements, sewers, etc.; A. W. Vars, Town Surveyor.	Fred Drehs, County Clerk.
New Jersey.....	Westfield.....	May 16, 8:15 p.m.....	Paving, any suitable material, 6 blocks, Wash. st., with sewer, \$50,000.....	Frank R. Lander, County Surveyor.
Washington.....	Blaine.....	May 16.....	Paving 28,000 sq. yds., 3 sts., asphalt, asph. macadam, wood block.....	Lloyd Thompson, Town Clerk.
New Jersey.....	Paterson.....	May 17.....	Bldg. 26,489 ft. crushed stone road in 3 counties.....	H. W. Troutman, C.E., Bellingham.
Indiana.....	Jefferson.....	May 23, 11 a.m.....	Constructing system of stone roads in Washington twp.....	H. J. Hardin, City Engineer.
Indiana.....	Kentland.....	May 23, 2 p.m.....	Bldg. gravel road in Honey creek and 3 in Fayette twp.....	Peter Nachand, County Auditor.
Indiana.....	Terre Haute.....	May 23, 11 a.m.....	Vit. block paving, curbing, etc., 3 blocks.....	E. R. Birmingham, County Auditor.
Missouri.....	Bethany.....	May 25.....	Paving Railway, American and Appleton streets.....	N. G. Wallace, County Auditor.
California.....	Long Beach.....	May 30.....		I. B. McClure, City Clerk.
				Board of Public Works.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
SEWERAGE				
Kentucky	Louisville	April 29, noon	Contract 66: 2,350 ft. 45, 39, 30 and 12-in. sewer, 9 to 27 ft. cut, 400 cu. yds. concrete; Contract 67: 2,960 ft. 36-in. concrete sewer, cut, 9.4 ft.; 50 cu. yds. rock; 860 cu. yds. concrete	P. L. Atherton, Chm. Sewer Bd. Walter E. Winn, City Engineer J. C. Carothers, City Clerk T. J. Reeves, City Clerk
Illinois	Danville	May 1	Constructing sewer in 2 additions; cost, \$70,000	R. M. Clayton, City Engineer
Missouri	Kirksville	May 2	Bldg. joint district storm sewer in Joint Dist. No. 1	William Sence, City Clerk
Iowa	Hawarden	May 2	Bldg. \$20,000 sewer system; plans by K. C. Gaynor, Sioux City	Atwell Thompson, City Engineer
Georgia	Atlanta	May 2	Bldg. 24,000 ft. trunk sewers, 6x9 ft. to 24-in., inc. 6,000,000 brick and 65,000 cu. yds. excav., 5 to 25 ft. deep, manholes, catch basins, castings, vit. pipe, etc.	A. W. Long, Mayor
Kansas	Wichita	May 2, noon	Bldg. lateral sanitary systems, sewer No. 12 in 6 Dists.: 1,513 ft. 21-in., 2,810 ft. 18-in., 3,470 ft. 15-in., 6,797 ft. 12-in., 6,320 ft. 10-in., 113,706 ft. 8-in. vit pipe sewer, etc.; B. C. Wells, City Engineer	Sam R. Sumner, City Clerk A. P. Perley, Clk. Bd. Pub. Wks. J. H. Weatherford, City Engineer R. A. Cairns, City Engineer
Tennessee	Jackson	May 3, noon	Sanitary sewer work: 1,530 ft. 16-in. and 192 ft. 6-in. c. i. pipe, leaded joints; 7,744 ft. 6-in. t. c. pipe, 16,428 ft. 8-in., 2,002 ft. 12-in., 3,338 ft. 15-in. double strength; 45 6x15, 45 6x12 and 510 6x8 t. c. Ys, 593 6-in. t. c. bends; 102 brick manholes, special c. i. covers; 8 single and 2 double 8-in. flush tanks.	Philip H. Cooper, Chm. Sewerage Bd.
Kansas	Manhattan	May 3, 3 p.m.	Bldg. complete sanitary sewer system; cost, \$80,000, inc.: pumping station, 1,624 ft. 24-in., 5,360 ft. 18-in., 5,200 ft. 15-in., 1,700 ft. 12-in., 67,000 ft. 8-in. pipe; 159 manholes; 23 flush tanks. Con M. Buck, City Engineer	J. Barry Mahool, Pres. Bd. Awards
Washington	Wenatchee	May 3, 5 p.m.	Bldg. pipe sewers: 2,056 ft. 24-in., 1,554 ft. 18-in., 1,773 ft. 15-in., 10,225 ft. 12-in., 16,366 ft. 10-in., 21,456 ft. 8-in., 40,512 ft. 6-in. side connections; 184 brick manholes, 4 1-2 ft.; 8 flush tanks; 74 catch basins, Loc. Imp. Dist. No. 8	Peter Leary, Jr., Pres. Sewer Comm. Lund & Hill, Engrs., Little Rock
Indiana	South Bend	May 3, 10 a.m.	Constructing pipe sewer in portion of East Broadway	Lloyd Thompson, Town Clerk V. N. Roderick, City Clerk
Tennessee	Memphis	May 3	Furn. mat. & laying t. c. pipe sewers in Klondike & Mt. Arl. dist.	Mayor and City Council Lee Nichols, City Auditor John A. Giles, City Engineer
Connecticut	Waterbury	May 3, 8 p.m.	Constructing sewers in Iron st. and Elmwood ave.	John Comeau, City Clerk C. V. Parrott, City Clerk
New Jersey	Morristown	May 4, 10 a.m.	Cleaning 3,000 ft. of pipe, repairing and stopping leaks in 12 manholes, water-proofing, repairing electrical mach. and engines and pumps in 4 ejector chambers, etc.	W. M. Dunlap, City Engineer
Maryland	Baltimore	May 4, 11 a.m.	Bldg. Sec. 2 Jones Falls Interc. San. Cont. 50: 18,000 cu. yds. earth excav. in trench, 300 in tunnels; 150 cu. yds. rock excav.; 650 cu. yds. embank.; 375 cu. yds. brick and 4,200 yds. concrete masonry; 145,000 lbs. reinforcing steel; 16,000 lbs. structural steel; C. W. Hendrick, Ch. Engr., Sewer Comm.	Geo. M. Adair, Street Comr.
Kansas	Hays City	May 5, 2 p.m.	Constructing \$60,000 sewer system and laterals and septic tank: plans by W. K. Palmer Co., Dwight Bldg., Kansas City, Mo.	A. F. Mac Donald, City Clerk Ralph J. Griswold, City Clerk W. H. Alexander, City Auditor Wm. F. Wilcox, Gen. Mgr. Wtr. Com.
North Dakota	Mandan	May 9	Constructing a sewer system; R. E. Wickham, C.E., Gr. Forks.	James Wilson, County Engineer W. T. Roberts, County Auditor George L. Henderson, Village Clerk Chas. Griswold, County Auditor
New York	Binghamton	May 11	Constructing sewer in James st.	James Wilson, County Engineer W. T. Roberts, County Auditor George L. Henderson, Village Clerk Chas. Griswold, County Auditor
Maryland	Baltimore	May 11, 11 a.m.	Furn. and erect. mechanical and electrical equipment for sewage disposal works at Back river.	John Comeau, City Clerk C. V. Parrott, City Clerk
Arkansas	Morrillton	May 16	Bldg. 3.5 miles sanitary sewer and septic tank.	John Comeau, City Clerk C. V. Parrott, City Clerk
New Jersey	Westfield	May 16, 8:15 p.m.	Bldg. sanitary sewers, etc.: 11,600 ft. 8-in. vit. pipe; 60 ft. 8-in. c. i. pipe; 21 manholes; 460 branches; 10 combined flush tanks and manholes; 3 drop and 10 extension connections; A. W. Vars, Surveyor.	Wm. Shadlow, City Clerk
Minnesota	Brainerd	May 16	Bldg. lateral sewer, Dist. No. 1.	Philip H. Cooper, Chm. Sewerage Bd.
Mississippi	Belzoni	May 17, 8 p.m.	Constructing system of house sewers: 3 or 4 miles 8 and 10-in. pipe, with centrifugal pump and motor; W. G. Kirkpatrick, Jackson, Engineer.	John Comeau, City Clerk C. V. Parrott, City Clerk
New Jersey	Perth Amboy	May 21, 8:30 p.m.	Constructing 12-ft. sewer in Baker Place.	John Comeau, City Clerk C. V. Parrott, City Clerk
WATER SUPPLY				
Massachusetts	Boston	May 2	Laying 3,780 ft. c. i. pipe in Arlington, inc. 600 cu. yds. rock excav.	Met. Water & Sewer Bd.
Pennsylvania	Mont Alto	May 2	Bldg. extension to w.w. at State Sanatorium: 10,200 ft. 6-in. high pressure force main, 2 tripleplex pumps, dir. con. to 25 h.p. gaso. engines, pump house, 2 mech. filters with superstructure; separate bid for 300,000-gal. steel tank.	State Com. of Health, Harrisburg E. P. P. Smith, Village Clerk
Ohio	Waverly	May 2	Plans, etc., for water works, also to superintend construction.	A. F. Mac Donald, City Clerk Ralph J. Griswold, City Clerk W. H. Alexander, City Auditor Wm. F. Wilcox, Gen. Mgr. Wtr. Com.
Michigan	Hancock	May 2, 4 p.m.	Bldg. 1,000,000-gal. rein. conc. circ. reservoir, 72 ft. internal diam., 32 ft. high, partly in ground, with flat roof.	John Comeau, City Clerk C. V. Parrott, City Clerk
Pennsylvania	Edinboro	May 2, noon	Constructing water works system.	John Comeau, City Clerk C. V. Parrott, City Clerk
North Dakota	Grand Forks	May 2	Constructing water main, No. 68, in Seventh ave.	Louis Kuehnle, Pres. Water Bd. Wm. Shadlow, City Clerk
Mississippi	Meridian	May 3	Bldg. 8,500 ft. 24-in. reinforced concrete conduit.	W. M. Dunlap, City Engineer
Louisiana	Breaux Bridge	May 3	Furn. and laying 2,200 ft. 8-in. and 12,400 ft. 6-in. c. i. water main, 20 fire hydrants; thirteen 8-in. and ten 6-in. valves; two 200 h.p. boilers; 2 duplex pumps; 75,000-gal. tank and tower, 125 ft. high; 10-in. well. A. C. Jones, Opelousas, Engr.	Wilbur Hill, City Engineer
Kansas	Colby	May 3, 3 p.m.	Bldg. water works; Burns & McDonnell, K. C., Mo., Engrs.	Capt. Whitman, Constr. Q. M. R. A. Cairns, City Engineer G. A. M. Johnson Benj. F. Guiney, Sec'y Water Bd.
New Jersey	Atlantic City	May 3, 2:30 p.m.	Furn. and install. at Absecon pumping station: 150 K. V. A. alt.-current generator, exciter, switchboards and transformers.	E. L. Hubbard, County Clerk J. L. Larkin, County Auditor E. W. Windsor, Town Clerk R. E. Lonsdale, Clk. Co. Comrs. R. J. Cunningham, County Contr. N. R. Deming, City Clerk
Iowa	Cherokee	May 3, 8 p.m.	Furn. and laying 1,000 ft. 6-in. and 2,200 ft. 4-in. c. i. pipe.	James Wilson, County Engineer W. T. Roberts, County Auditor George L. Henderson, Village Clerk Chas. Griswold, County Auditor
Tennessee	Johnson City	May 5, 7 p.m.	Constructing a water supply system: 12 miles 18-in. gravity main; 5 miles 6, 8, 10 and 12-in. street mains, hydrants, etc.; 5,000,000-gal. reservoir, lined and covered with concrete.	John Comeau, City Clerk C. V. Parrott, City Clerk
Alabama	Gadsden	May 18, 5 p.m.	Rebldg. pumping station and settling basin of w.w. plant; cost, \$50,000; J. N. Hazlehurst, Atlanta, C. E.	John Comeau, City Clerk C. V. Parrott, City Clerk
Kansas	Ft. Riley	May 18, 10 a.m.	Taking up and relaying 10,000 ft. water pipe line, furn. & laying 5,000 ft. new 6-in. c. i. water main and making connections at Maneuver Camp.	John Comeau, City Clerk C. V. Parrott, City Clerk
Connecticut	Waterbury	May 20	Bldg. \$300,000 concrete dam in town of Morris.	James Wilson, County Engineer W. T. Roberts, County Auditor George L. Henderson, Village Clerk Chas. Griswold, County Auditor
Maryland	Leslie	June 1	Bldg. 100,000-gal. clay-lined reservoir, furn. c. i. pipe, etc.	John Comeau, City Clerk C. V. Parrott, City Clerk
Michigan	Detroit	June 14, noon	Erecting engine-room super. at new pumping station.	John Comeau, City Clerk C. V. Parrott, City Clerk
BRIDGES				
Pennsylvania	Easton	April 29, 10 a.m.	Constructing steel highway bridge, etc., at Glendon.	Northampton County Comrs. Stanley Struble, Pres. Co. Comrs.
Ohio	Cincinnati	April 29, noon	Bldg. rein. con. protection wall for bridge and road, Holbe twp.	J. W. Riley, County Clerk
Oklahoma	Oklahoma City	April 30	Furn. material and building 4 steel bridges in County.	C. W. Comstock, State Engr.
Colorado	Fort Morgan	April 30, noon	Furn. & erect. pile trestle hwy. bridge over river; Morgan Co.	E. H. Seaborg, County Auditor
Washington	South Bend	May 2	Bldg. 140 ft. Pratt steel truss bridge over river, near Holcomb.	W. H. Speights, Clk. Co. Supers.
Mississippi	Monticello	May 2, 2 p.m.	Bldg. steel bridge over Silver Creek on Mt. Carmel road.	J. W. Niehaus, County Clerk
Kansas	Leavenworth	May 2, noon	Bldg. and repairing six bridges.	County Commissioners.
Pennsylvania	York	May 2	General overhauling of 27 iron bridges, inc. 2 coats of paint.	Barney C. Kreager, City Secretary.
Texas	Sherman	May 2	Bldg. concrete arch or steel span, conc. abutments, 40x22 ft.	Jos. Overfield, County Clerk
Pennsylvania	Stroudsburg	May 2, 11 a.m.	Bldg. 2 double-arch stone bridges over creeks, Monroe Co.	E. L. Hubbard, County Clerk
Oklahoma	Buffalo	May 2, 1 p.m.	Bldg. wooden pile bridge, 178 ft. long, 14 ft. rdwy., haul 22 miles; also 3 wooden truss bridges on piles, 40 ft. long, 14 ft. rdwy.	J. L. Larkin, County Auditor
Ohio	Batavia	May 2, noon	Bldg. sub and super over creek, on Xenia road, near Edenton.	E. W. Windsor, Town Clerk
Minnesota	Cohasset	May 3, 2 p.m.	Bldg. \$5,000 steel and concrete bridge over Mississippi river.	R. E. Lonsdale, Clk. Co. Comrs.
Nevada	Winnemucca	May 3, 2 p.m.	Bldg. rein. conc. bridge also 2 rein. conc. culverts ov. Humb. riv.	R. J. Cunningham, County Contr.
Pennsylvania	Pittsburg	May 3, noon	Superstructure and masonry of bridge No. 1, Turtle Creek Boro.	N. R. Deming, City Clerk
Wisconsin	New London	May 3, 8 p.m.	Bldg. concrete bridge on Embarrass river at St. John's Pl.	James Wilson, County Engineer
Delaware	Wilmington	May 3, noon	Bldg. rein. conc. girder bridge at Noyenton Mill dam, St. Georges Hundred; bidders also submit plans, etc., for arch br.	W. T. Roberts, County Auditor
Indiana	Princeton	May 4, 11 a.m.	Bldg. 11 steel and 14 reinforced concrete bridges.	George L. Henderson, Village Clerk
New York	Rye	May 4, 8 p.m.	Bldg. rein. concrete bridge, 30 ft. span, 38 ft. wide.	Chas. Griswold, County Auditor
Indiana	Peru	May 5	Constructing 20 bridges.	County Auditor.
Ohio	Steubenville	May 6, 1 p.m.	Bldg. sub. and superstructure, bridge No. 26, Isl. Crk. twp.	

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
BRIDGES—Continued				
West Virginia	Elkins	May 6, 3 p.m.	Bldg. bridge over Cheat river; rein. concrete, steel with concrete or stone abutments, or steel on abutments in place.	F. A. Rowan, County Clerk.
Iowa	Cedar Rapids	May 7	Bldg. rein. concrete bridge over Cedar river, at 3d ave.; 6 spans, 96 ft. each, 48 ft. roadway with two 8-ft. sidewalks.	Percy P. Smith, City Engineer.
Manitoba	Ellici	May 7	Bldg. bridge over Assiniboine river.	Henry Tillman, Sec'y-Treas.
Ohio	Cleveland	May 11, 11 a.m.	Bldg. concrete bridge, also concrete culvert and conduit.	Frank R. Lander, County Surveyor.
Ohio	Cleveland	May 14, 11 a.m.	Bldg. embankment, Barrett road, Olmstead twp.	Frank R. Lander, County Surveyor.
Illinois	No. Chicago	May 14, noon	Bldg. concrete arch bridge at Naval Training Station.	Bureau of Navigation, Navy Dept., Washington, D. C.
Michigan	Ypsilanti	May 16, noon	Bldg. 3-arch rein. concrete bridge over Huron river, 225 ft. long, 46 ft. wide, over all.	S. Damon, City Clerk.
Louisiana	Gretna	June 1	Constructing steel bridge over canal in Jefferson Parish.	E. M. Hubert, Sec'y Police Jury.
Utah	White Rocks	June 1	Bldg. substructure of \$18,000 steel bridge at Vintah and Ouray Indian agency. M. J. Patterson Constr. Co., Denver, Colo., has contract for superstructure.	Com'r Indian Affairs, Wash., D. C.
LIGHTING AND POWER				
New York	Ft. Terry	April 30, 10 a.m.	Bldg. electric light and power plant and system; also minor alterations and for furn. and install. new boiler in pump plant.	Capt. F. T. Arnold, Constr. Q. M.
Manitoba	Winnipeg	April 30	Supplying arc lamps and regulating apparatus, switchboards, insulated live wire, etc.	M. Peterson, Sec'y Bd. Control.
Kansas	Colby	May 3, 3 p.m.	Bldg. elec. light plant; Burns & McDonnell, K. C., Mo., Engrs.	Fred A. Wertz, Mayor.
Brit. Columbia	Prince Rupert	May 3, noon	Boilers, engines, condensers, pumps and piping, electrical apparatus, etc. Jas. Milne, Cons. Engr., Lou Bldg., Vancouver.	Thos. Dunn, Chm. Elec. Lt. Com.
California	Santa Ana	May 4	Franchise to build and operate electric light, power and transmission lines on certain County highways.	Clk. County Supervisors.
Arkansas	Ft. L. H. Roots	May 10	Wiring buildings and building electric lighting system at fort.	Constructing Quartermaster.
Maryland	Baltimore	May 11, 11 a.m.	Furn. and erect. elec. and mech. equipment for sewage works.	C. W. Hendrick, Ch. Engr. Sew. Com.
Rhode Island	Ft. Greble	May 11, 11 a.m.	Extending and remodeling underground elec. distrib. system.	Lt. F. H. Phipps, Jr., Constr. Q. M.
Ohio	Columbus	May 14	Switchboard and connecting cables for controlling alt. generators in new power house at Ohio penitentiary.	Osborn Eng. Co., Cleveland.
Dist. of Col'b'a.	Washington	May 21, 11 a.m.	Additions to power plant and dis. systems, U. S. Med. School.	Bur. Yds. & Docks, Navy Dept.
Delaware	Ft. Du Pont	May 23, 11 a.m.	Furn. and install. two 75 h.p. water tube boilers, 1 feed pump, feed-water heater, new steam and exhaust mains, and removals and changes in pump house.	Constructing Quartermaster.
MISCELLANEOUS				
Indiana	Indianapolis	April 29	Bldg. concrete retaining wall on south bank of Fall creek.	Benj. Jameson, Chm. Park Comm.
Mississippi	Brookhaven	April 29	Bldg. 2-story City Hall; P. R. Henkel, Arch., N. Orl., La.	Chester Byrne, City Clerk.
Georgia	Atlanta	April 29, 5 p.m.	Bldg. 200-ton crematory or two 100-ton plants.	G. H. Brandon, Sec'y Bd. Health.
Oklahoma	Coalgate	April 29	Erecting \$10,000 County jail.	Felix Gibson, County Clerk.
Ohio	Mt. Gilead	May 30	Furnishing 8 to 48-in. iron culvert pipe.	Clifton Sipe, County Auditor.
New York	New York	May 2	Rebldg. and repairing ferry structure foot Roosevelt st.	Calvin Tompkins, Comr. of Docks.
North Dakota	Fargo	May 2	Erecting detention hospital for Bd. of Health.	N. C. Morgan, City Auditor.
Mississippi	Starkville	May 2	Furn. carload steel road culverts, 16 and 18-in. gage; all sizes.	E. O. McIlwain, Clk. Co. Superv.
Florida	Perry	May 2, 2 p.m.	Bldg. new brick jail, complete; \$500 check with bids.	John C. Calhoun, Clk. Co. Comrs.
Kansas	Colby	May 3, 3 p.m.	Furnishing 1,000 ft. of 2 1/2-in. hose and 2 hose reels.	Fred A. Wertz, Mayor.
Connecticut	Hartford	May 3, noon	Competitive drawings for 2-story fire house on Windsor ave.	H. B. Clark, Pres. Bd. Fire Comrs.
Indiana	Sullivan	May 3	Erecting City Hall and Fire Department headquarters.	Mayor and City Council.
New York	West Point	May 3, 2 p.m.	Furn. continuous electric blue-printing machine.	Post Quartermaster.
Illinois	Peoria	May 3, 5 p.m.	Installation of police patrol, flash light, and fire-alarm system for city; \$500 check with bid; \$3,000 bond.	Fred B. Tracy, City Clerk.
Ohio	Columbus	May 3	Erecting garbage collection stable.	H. S. Holton, Dir. Pub. Service.
Indiana	Fort Wayne	May 5, 10 a.m.	Bldg. public comfort station under sidewalk at Court House.	G. W. Lindemuth, County Auditor.
North Dakota	Lisbon	May 9	Furn. corrugated steel culverts during season.	I. E. Arnston, County Auditor.
Nevada	Carson City	May 9	Furnishing 300 steel cells, with window guards, gratings, cell-door locking and operating devices.	J. W. LeGate, Clk. St. Bd. Prison Commissioners.
West Virginia	Elkins	May 9, 3 p.m.	Erecting jail and jailer's residence; B. F. Smith, Architect.	F. A. Rowan, County Clerk.
North Carolina	Wentworth	May 10, noon	Building a jail; Wheeler & Stern, Charlotte, Architects.	J. T. Holland, Clk. Co. Comrs.
Georgia	Americus	May 10	To audit books and records of clerk and treasurer and supt. of water works from July 1, 1907, to April 1, 1910.	W. E. Brown, Chm. Finance Com.
North Carolina	Wentworth	May 12, noon	Furn. materials and bldg. jail; Wheeler & Stern, Archs., Charl.	J. T. Holland, Clk. Co. Comrs.
Massachusetts	Boston	May 15	Furnishing watering carts, also watering and oiling sts. in 10 districts of city; also for cleaning sts. and sidewalks in 4 districts, to Dec. 1, 1910.	G. C. Emerson, Supt. of Streets.
Illinois	East St. Louis	May 16, noon	Constructing diversion channel for Cahokian creek and necessary levees and embankments, etc., San. Dist.	Bd. Trus. East Side Levee Dist.
Brit. Columbia	Vancouver	May 31, 3 p.m.	Installation of garbage destructor plant at Bridge st. yard on False Creek to destroy at least 70 tons mixed garbage per 24 hours, complete; bidders submit plans, etc.	W. McQueen, City Clerk.

STREET IMPROVEMENTS

Bessemer, Ala.—Commercial Club of Birmingham has proposed to build boulevard from East Lake to West Lake.

Birmingham, Ala.—Council will soon award contracts for \$120,000 worth of street paving, mostly bitulithic.

Florence, Ala.—Council has passed resolution authorizing expenditure of \$1,200 on city streets, work to be done at once; Street Committee will employ permanent street overseer.

Gadsden, Ala.—City and Louisville & Nashville Railroad are considering paving Locust st.; cost \$38,000.—W. H. Courtney, Louisville, Ky., Chief Engineer.

El Dorado, Ark.—City will construct 3 to 5 miles concrete sidewalks and curbing.—T. T. Sheppard, Mayor.

Little Rock, Ark.—Road Improvement District has been organized to construct macadamized road from Scott to point within 5 miles of Jefferson County line; distance, about 13 miles; cost \$4,500 per mile.

Benicia, Cal.—Citizens have voted \$100,000 bonds for paving of Main st.; bids will be received May 3.—F. A. Steiger, Vacaville, Engineer.

Downieville, Cal.—Sierra County is considering election on bonds, \$40,000 to \$80,000, to build good roads.

Oroville, Cal.—Chamber of Commerce will urge construction of Oroville-Downieville road.

Petaluma, Cal.—City is considering paving seven streets with macadam.—N. S. Frost, City Engineer.

Red Bluff, Cal.—Tehama County will vote on \$60,000 bonds to build roads and bridges and erect court house.

San Francisco, Cal.—Project to make Dolores st. main boulevard of the Mission has been formulated by Mission Promotion Association.

San Francisco, Cal.—Board of Public Works has recommended to Supervisors that sidewalks and bitumen pavement be constructed at crossing of 18th ave. and Irving st.; also that sidewalks be abolished along portion of Lincoln Way and that stretch be bituminized; cost \$15,000.

San Francisco, Cal.—Park Commissioners have asked for \$656,800 for improvements; about \$173,000 will be used for roads and grounds.

Santa Rosa, Cal.—County did not receive any bids for construction of bridges and culverts on road between Headsburg and Geyser.—F. L. Wright, County Clerk.

Sisson, Cal.—Board of Supervisors has acted favorably on petition of property holders to build a road to snow line on Mount Shasta.—E. W. Nolan, County Surveyor.

South Pasadena, Cal.—Council has decided to grade, curb and gutter Palm ave.

La Junta, Col.—Council Commissioners have ordered opening of about 9 miles of road and construction of 5 bridges.

Pueblo, Col.—Bids have been ordered advertised for sidewalks in Sixth Ward; lay-

ing sidewalks on 10th st. is being considered.

Hartford, Conn.—Street Board is considering improvement of Capitol ave.

New Haven, Conn.—Permanent Paving Comm. has decided to expend about \$136,000 on street improvements: with macadam and Belgian blocks, Edgewood ave.; macadam, three streets; with granite blocks, bridge approaches and Congress ave.; wood block on Grand ave. and other streets; bids will be asked soon by City Engineer Kelly.

Waterbury, Conn.—State Highway Commissioner Jas. H. MacDonald, New Haven, will expend \$10,000 for improvement of old Meriden rd.

Georgetown, Del.—County Commissioners have decided to grade portion of road from Mulford to this city.

Selbyville, Del.—Town has voted for improvement of streets.

Wilmington, Del.—Levy Court is considering macadamizing of road from Hare's to Roger's Corner.

Key West, Fla.—Citizens have voted \$140,000 bonds for improvement of streets.

Tarpon Springs, Fla.—Citizens have voted \$15,000 bonds to pave streets.

Dublin, Ga.—City is considering election on \$40,000 bonds for paving Madison, Lawrence and Franklin sts., and other improvements.

Coeur D'Alene, Ida.—Councilmen Louder and Arnold have been appointed by city to visit Portland and inspect the Hassam compressed cement paving work now being installed; other members of Council will leave

for Spokane to investigate granitoid paving of Blome Co. before letting any contracts for paving streets.

Cairo, Ill.—Council has adopted ordinances for paving 8th st., \$20,117.44; Commercial ave., \$141,000, and Sycamore st., \$49,584.10.

Chicago Heights, Ill.—City will construct 50,000 sq. yds. of brick and 10,000 sq. yds. of macadam paving.—A. L. Fox, City Engineer.

Hillsboro, Ill.—City proposes to pave School and Tremont sts. with brick.—J. A. Trimble, Charleston, Engineer.

Huntley, Ill.—Plans have been completed for construction of 9,600 sq. yds. of brick pavement; cost \$23,000.

Steger, Ill.—City has postponed for few weeks date of opening of bids for constructing 8 miles of sidewalks.—J. A. Wachs, Village Clerk.

Anderson, Ind.—Preliminary plans are being prepared by City Engineer G. A. Lampert for cement sidewalks in various streets.

Elkhart, Ind.—Board of Public Works has ordered purchase of 25,000 Metropolitan blocks.

Indianapolis, Ind.—Specifications for street and sewer improvements have been completed by the City Engineer; bids will be asked about May 1.

Mishawaka, Ind.—Council has passed resolution for improvement of West Second, Tenth, Eleventh and Elizabeth sts.

Richmond, Ind.—Wayne County Commissioners will soon receive bids for three miles of crushed stone road improvements with concrete retainers, on National rd.—R. A. Howard, County Engineer.

South Bend, Ind.—Board of Public Works has decided to improve Campau st. by grading, curbing and repairing walks.

Warsaw, Ind.—Council is considering paving of about 3 miles of streets.

Cedar Rapids, Ia.—Council has rejected all bids opened Apr. 6 for brick block on portions of five streets, and curbing on three streets.

Centerville, Ia.—Bids will be opened May 2, noon, for 25,930 sq. yds. brick pavement on 5-in. concrete foundation, cement filler; also on 20,910 lin. ft. combined curb and gutter.—Hall & Adams, City Engineers.

Chariton, Ia.—Council has decided to pave portions of Grand st. and Auburn ave. with vitrified brick.

Council Bluffs, Ia.—Mayor Maloney has recommended repaving of Broadway with Purington block brick.

Oskaloosa, Ia.—Improvement of number of streets is being considered. Address Mayor Bacon.

Waterloo, Ia.—Mayor J. R. Rector has recommended better roads to factories.

Waterloo, Ia.—Council has decided to grade, curb, gutter and pave W. 3d st.

Fort Scott, Kan.—Mayor W. E. Brooks is urging construction of rock road from this city to Kansas City.

Hutchinson, Kan.—Citizens of south of Nickerson have petitioned County Commissioners to locate road beginning at bridge across Arkansas River.

Lawrence, Kan.—Paving of Tennessee st. is being considered.

Sedgwick, Kan.—Construction of 9 miles of sand clay road is being considered.

Topeka, Kan.—City Commissioners have decided to let no contracts during year for paving; Commissioners plan to clear up present paving conditions and complete unfinished work.

Flemingsburg, Ky.—Council has ordered one-half mile of concrete pavements constructed in different parts of city; also appropriated \$200 for oiling streets.

Lexington, Ky.—Board of Public Works will soon advertise for bids for laying brick block on part of street, 6,000 ft. in length and 5 ft. between curbs; majority of work reconstruction; and laying brick on eight blocks, 30 ft. between curbs; also for about 15 miles of concrete sidewalks.—W. M. Bateman, Chairman; A. M. Harrison and W. H. McCorkle compose Board.

Paducah, Ky.—The General Council has passed resolution providing for the construction of 22 miles of concrete sidewalks; estimated cost, \$175,000.

Winchester, Ky.—Clark County Construction Co. is urging that Fiscal Court ask for bids for all county roads which have not as yet been let out.

Natchitoches, La.—Police Jury has adopted ordinances providing for construction of road from this city to Campi.

New Orleans, La.—Committee on Streets and Landings is considering improvement of eleven streets with granitoid.

Baltimore, Md.—Bids for improving Hartford rd. within city limits will be asked for by State Roads Commission this month.—J. M. Tucker, Chairman.

Baltimore, Md.—Council is considering regrading of Eutaw st., \$15,000, and Parkwood ave., \$9,000; also passed on third reading ordinances for paving two streets.

Bethelton, Md.—Governor Crothers has signed bill for street improvements.

Cambridge, Md.—Citizens will vote in June on \$50,000 paving bonds.

Haverhill, Mass.—Council is planning to make street improvements in Wards 5 and 7.

Lowell, Mass.—Purchasing Agent MacKenzie has called for bids for stone and cement for summer's paving work; bids include 14,000 sq. yds. of paving stone and 2,800 bbls. of cement.

Lynn, Mass.—Board of Public Works is considering paving of Broad st.

New Bedford, Mass.—Board of Aldermen has voted to advertise for bids for laying granolithic sidewalks.

Newburyport, Mass.—Road Committee has decided to purchase road roller; \$2,500 available.

Taunton, Mass.—Committee on Streets and Bridges has recommended \$25,000 for permanent improvements.

Cadillac, Mich.—County Road Commissioners have rejected all bids for construction of 10 miles of State award roads.

Detroit, Mich.—Council has directed J. J. Haarer, Commissioner Public Works, to receive bids for paving Chicago boulevard with sheet asphalt; estimated cost \$29,054.

Coldwater, Minn.—City has approved of plans for construction of 6,000 sq. yds. brick paving and 2,900 lin. ft. comb. curb and gutter; cost, \$11,360; city will probably do work by day labor.—E. C. Shoecraft, City Engineer.

Duluth, Minn.—Council has directed City Engineer to make estimates of cost of paving Jensewold st.

Duluth, Minn.—West Duluth Commercial Club is interested in proposed construction of 80-ft. road from Smithville to New Duluth.

Hernando, Miss.—City will issue \$10,000 bonds for construction of cement sidewalks.

Excelsior Springs, Mo.—Council has passed a resolution providing for paving of Kansas City ave.

Kansas City, Mo.—Board of Public Works has adopted plan for traffic way to south on McGee st.—Jas. L. Darnell, City Engineer.

Lexington, Mo.—Citizens have voted \$120,000 bonds for building roads.

Sedalia, Mo.—Sedalia Special Road District has rejected all bids for the construction of six rock and gravel roads.—W. H. Powell, Secretary.

St. Joseph, Mo.—Board of Public Works has approved ordinances for improvement of Dewey ave. and four other streets.—Joel E. Gates, City Clerk.

Trenton, Mo.—City will pave number of thoroughfares this summer with brick.

Atlantic City, N. J.—Council is considering extension of Atlantic ave. into Ventnor.

Hackensack, N. J.—Freeholder Wendel Andreas has presented resolution to the Board calling for the appointment of a committee of seven to lay out system of roads under new road law.

Hackensack, N. J.—Paterson Plankroad Committee, Board of Freeholders, is considering repaving of road with something better than macadam.

East Orange, N. J.—Council has passed ordinance for repaving Washington pl.

Elizabeth, N. J.—Council has decided to expend \$8,000 in repaving Magnolia ave. and three streets.

Jersey City, N. J.—Bids will be received May 5, 3 p. m., for \$150,000 Newark plank road improvement bonds and \$150,000 boulevard repair bonds.—Walter O'Mara, Clerk Board of Freeholders.

Newark, N. J.—Board of Street and Water Commissioners is considering paving of four streets and widening of two others.—W. E. Greathead, Clerk.

Newark, N. J.—Essex County Canal Abandonment Association is favorable to erection of boulevard along canal line from plank road to Bloomfield ave.—David Goldsmith, President.

Roselle Park, N. J.—Streets and Highways Committee is considering macadamizing of Union rd.

Trenton, N. J.—Finance and Street Committees of Council have decided to issue \$100,000 bonds for paving and resurfacing of streets; Princeton ave. will cost \$50,000 and S. Warren and Front sts., \$15,000.

Ballston Spa, N. Y.—Plans have been issued for new State road to be built through this village to connect with State roads from north and south.

Ballston Spa, N. Y.—Citizens have voted \$17,900 bonds for street improvements.—W. H. Sherman, Village Clerk.

Binghamton, N. Y.—Main st. is now ready for paving as sewer has been completed. Alderman L. C. Davenport is interested; Council has decided to pave front st.—D. C. Herrick, City Clerk.

Kenmore, N. Y.—Town Board of Tonawanda has appropriated \$1,000 for repairing Military rd., \$300 for Knoche rd., \$200 for the Town Line rd., \$1,000 for the Guidle Board rd., \$700 for Englewood rd., \$500 for old Delaware rd., and \$2,500 for O'Neil st.

Le Roy, N. Y.—Town has voted \$3,500 for improving town roads.

Mt. Vernon, N. Y.—Widening of South 4th st. is being considered.

Penn Yan, N. Y.—Town has voted \$15,500 for paving Elm st. with brick.

Saranac Lake, N. Y.—Paving of Park ave. is being considered. Address City Engineer Collins.

Weaverville, N. C.—City is considering macadamizing of College st.

Akron, O.—Council has decided to grade, curb and pave Stemmer ave. and Getz st.; also install lateral sewers.—D. W. Harter, Clerk.

Bellefontaine, O.—City has sold \$12,088 Elm st. paving bonds to Seasongood & Mayer, \$13,076.10.

Celina, O.—Citizens have voted \$14,000 for improvements and building of streets.

Cleveland, O.—Plans are being prepared by City Engineer Robert Hoffman for building roadway over Cuyahoga valley from the end of Clark ave. to Petrie st.

Columbus, O.—House has passed Reed bill to appropriate \$6,000 to build driveways, walks and barn on State Park at Fort Meigs.

Elyria, O.—Council has passed ordinance for paving of portions of Cedar and Pine sts. with brick.

Hamilton, O.—County Commissioners have adopted resolution for improvement of New Haven road.

Lorain, O.—Council has passed a resolution providing for macadamizing of portion of 31st st.

New Philadelphia, O.—County Commissioners have ordered County Surveyor to prepare plans for a mile of brick on Uhrichsville Road.

Newport, O.—Board of Aldermen has adopted ordinance for improvement of 8 streets. Address Mayor Kriger.

Wauseon, O.—City has awarded \$12,659 street bonds to M. E. Reed at \$243.63.

Youngstown, O.—Council has ordered paving of four streets and extension of Madison ave.

Youngstown, O.—General Improvement Committee is considering improvement of Broadway.

Portland, Ore.—County Court has appropriated \$105,000 for county roads.

Portland, Ore.—Street Committee is considering paving of Rose City Park district.

Roseburg, Ore.—Part of 2d ave., South, in North Roseburg, will be macadamized this summer; width, 16 ft.; cost about \$8,000.

Bethlehem, Pa.—Plans will be prepared for paving Main st.; material undecided.

Erie, Pa.—Council is considering grading, curbing and paving of Plum and Raspberry sts.

New Cumberland, Pa.—Citizens will vote next November on \$20,000 bonds for macadamizing streets.

Norristown, Pa.—Upper Dublin Township, Montgomery County, has decided to issue \$15,000 good road bonds.

Reading, Pa.—Councils are considering 20 paving bills covering 25 squares of street paving.

Williamsport, Pa.—Mayor Chas. D. Wolfe has recommended \$100,000 bond issue for street and sewer improvements.

York, Pa.—Council is considering paving of E. Market st.

Providence, R. I.—Cost of abolition of Hartford ave. and Plainfield st. crossings has been placed at \$160,000.

Darlington, S. C.—City is considering bond issue for street improvements.

Knoxville, Tenn.—Council has passed on second reading ordinance appropriating \$15,000 to reduce grade on S. Broadway.

Cuero, Tex.—Precinct No. 1 has defeated proposed \$100,000 good road bond issue.

Dallas, Tex.—Commissioner Doran has recommended repaving of Elm ave.; 11,291 sq. yds. paving, 5,077 lin. ft. of straight and 763 lin. ft. of curved curb will be necessary.

El Paso, Tex.—Mayor Sweeney is discussing plan to build five driveways at Washington Park.

El Paso, Tex.—Council has adopted ordinance for paving of Myrtle ave. and W. Overland st.

Galveston, Tex.—County Commissioners have rejected all bids received for constructing roadway from Algoa to Brazoria county line; specifications will be prepared and bids asked for grading line only; Board will at once advertise for bids for \$385,000 worth of improvements, mainly road work.

Georgetown, Tex.—City is considering construction of 6 miles of cement sidewalks.

Greenville, Tex.—Citizens will vote May 16 on \$100,000 bonds to pave ten miles of streets.

San Antonio, Tex.—Council has adopted resolution introduced by Alderman Mauer-mann, authorizing calling for bids for repairing asphalt paved streets left unprepared by Parker-Washington Co.

San Marcos, Tex.—Hays County will vote May 7 on \$20,000 bonds for macadamizing roads.

Sterling, Tex.—Citizens have voted \$16,000 bonds to improve roads.

Waxahachie, Tex.—Ellis County will construct about 40 miles of roads; cost \$125,000.

Provo, Utah.—Bids will be advertised for laying cement sidewalks in northeastern part of city.

Salt Lake City, Utah.—Twelfth South st. will be opened and graded all the way to Garfield by County Commissioners.

Alexandria, Va.—Board of Aldermen is considering improvement of Pitt and Walker sts.; cost \$1,025.

Boykins, Va.—City will expend \$2,700 for street improvement.—D. Priddy, Mayor.

Lexington, Va.—Council has decided to hold election May 12 on \$30,000 bonds for improvement of roads and streets.

Norfolk, Va.—Mayor Riddick has signed ordinance authorizing \$12,000 bond issue for account of Berkley Ward improvements.

Norfolk, Va.—City Engineer Brooke will prepare estimate of cost of extending Freemason and Falkland sts., curbing and guttering three streets and paving four avenues with bituminous macadam, and filling Landing st.; also guttering and paving 20th st.

Radford, Va.—Citizens will vote May 17 on \$50,000 bonds for street improvements.

Coffey, Wash.—Council has decided to improve streets in south end of town.

Pasco, Wash.—Plans are being prepared by City Engineer Graves for street and sewer improvements to be made this year in this city.

Puyallup, Wash.—Council is considering petition for grading Cedar ave.

Spokane, Wash.—Plans have been completed for sewers as follows: Fifth Ward, \$19,315; First Ward, \$20,815; Atlantic st., \$1,165; Boone ave., \$4,315, and Washington st., \$29,850.

Spokane, Wash.—Council is considering grading and curbing of two streets, grading, parking and curbing about six streets, paving 6th ave. with granitoid and grading, building bridge and retaining wall on 17th st.

Spokane, Wash.—County Commissioners will bid on improvement of Regal, Spangle and West roads.

Tacoma, Wash.—Council is considering improvement of N. 14th, Steele and other districts.

Fond du Lac, Wis.—City Engineer J. S. McCullough has recommended reinforcing of cement streets with metal.

Janesville, Wis.—Board of Aldermen has decided to pave East and Wisconsin sts. with asphalt macadam.

Superior, Wis.—Street Committee is considering improvement of three streets in Tenth Ward; also Cass ave. and E. 4th st.

Oshawa, Ont., Can.—City will construct pavements this season at cost of \$15,307.30.

St. John, N. B., Can.—Board of Works has recommended that tenders be called for paving under specifications already prepared.

Verdun, Que., Can.—Council has adopted Engineer's estimates, which recommends an expenditure of \$25,000 for construction of roads, sidewalks and water works.

CONTRACTS AWARDED

Montgomery, Ala.—Paving to Southern Paving & Construction Co., Chattanooga, Tenn., Monroe st. and Bibb st., with asphalt; to Metropolitan Construction Co., Kansas City, Mo., to pave Bibb st. from Moulton to Wilkerson st. with mineral rubber; to Southern Bitulithic Co., Nashville, Tenn., to pave Mobile st. with bitulithic; to Jamison & Hollowell, city, to pave Maury st. with wood block, sidewalks on Clitherell st. with hexagon tile, and sidewalk on Maury st. with hexagon tile.

Jonesboro, Ark.—Brick pavement on gravel foundation, \$43,790, to J. A. Koons, Mt. Vernon, Ill.; to Noah Bogart, Washington, Ind., 10,000 lin. ft. of curb, 29c., and 105,000 sq. ft. walk, 95c.; total, \$13,006.

Redding, Cal.—First six miles of road from Kennett to Antler, \$7,800, to J. W. Cornand, of Kennett; also to James Asher and W. A. Calkins, \$3,575, for two miles of road out of Ingot.

San José, Cal.—Paving uncomplete portions of E. Santa Clara st., to Ransome-Crummey Ct., 38½c. per sq. ft. each for pavement and gutter; paving number of intersecting streets, to same company, 26c. per sq. ft., \$60 for catch basins and \$1.25 per lin. ft. for drains.

Bridgeport, Conn.—Furnishing wooden blocks for paving streets to Wyckoff Pipe and Cresoting Co., \$1.65 per sq. yd.; paving Broad st. to W. H. Arthur, Stamford, \$1.47 per sq. yd.; brick contract to Silliman & Godfrey, \$28.50 per thousand for Fairmount brick.

Belleville, Ill.—Paving to Hoeffken Bros., Main st., \$20,974.50, Albion brick; Caseyville ave., \$11,186, Albion brick; Church st., \$8,128, Egyptian brick; to Reeb Bros., Illinois st., \$12,199, Egyptian brick; High st., \$8,141, Egyptian block; Jackson st., \$4,878.

Edwardsburg, Ill.—Paving W. Vandalia st., to P. P. Gaynor, \$8,138; Union st., to O. T. Dunlap, \$11,738.

Quincy, Ill.—Grading Spruce st. to Henry Hummer, 22½c. per yd.

Moline, Ill.—Paving 21st st. with asphalt, to McCarthy Improvement Co., \$8,886; concreting alley between 5th and 6th aves., to Gust Ed Construction Co., \$5,410.

Peoria, Ill.—Paving S. Washington st., to A. D. Thompson, \$102,000 for paving alone.

Elkhart, Ind.—Paving Bowers st., to Andrews Aspnalt Paving Co., \$1.06 per sq. yd. for macadam and 44c. lin. ft. for curbing; \$1,781.42.

Fort Wayne, Ind.—Cement walks, High st., to Edw. Grosjean, 10½c. per sq. ft.

Siuix City, Ia.—Alley paving, to M. L. Flinn, \$2.25 per sq. yd.

New Orleans, La.—Paving with granitoid concrete blocks pavement on portion of Palmyra st., Egan Bros., \$80,275; Standard Paving and Construction Co., \$80,412, and Rudolph S. Blome Co., \$89,744; bids for construction of sidewalks and installation of subsurface drainage, curbs and gutters in connection with paving of Palmyra st., as follows: Bancroft & Ross, \$79,017; Jos. A. Craven & Co., \$79,219; Barber Asphalt Co., \$83,285; Brock & Egan, \$88,227; Etta Construction Co., \$101,431.

Baltimore, Md.—Street improvements: Addison alley, between Ramsay st. and Wilkens ave., vitrified brick, to Thomas Mullen; Longrove alley, between Adam alley and North ave., vitrified brick, to Thomas Mullen; Carey st., granite blocks, to P. Reddington & Sons; Morton st., vitrified brick, to D. V. Ault & Co.; Ostend st., vitrified brick, to D. V. Ault & Co.; North ave., sheet asphalt, to F. E. Schneider Paving Co.; Wilkens ave., sheet asphalt, to F. E. Schneider Paving Co.

Holyoke, Mass.—Portion of State road, to P. F. Giovanni & Co., Boston.

Kalamazoo, Mich.—Road to Lowe & Steers.

Grand Rapids, Mich.—Grading and resurfacing E. Fulton st., \$11,064, and grading and paving Lake ave., \$7,657, to Carpenter & Anderson.

St. Joseph, Mo.—Hassam paving, 12,000 sq. yds., 3,000 lin. ft. curbing, and 10,000 sq. ft. of sidewalk on Grand ave., to Rackliffe-Gibson Construction Co., \$20,512.

Bozeman, Mont.—Cement sidewalks, curbs, gutters and crosswalks, bids opened April 7, to Steve Birch, Fargo, \$30,000.

Omaha, Neb.—Grading, 33d st. from Dewey to Jackson, 29c. per cu. yd.; 34th st. from Arbor to Gold, 28c., to Bust Hamel; Fowler ave., from 34th to 36th, 27c.; Vinton, from 31st st. to 32d ave., 28c.; Cass st., from 33d to 36th, 29c., to A. J. Stanley; Webster st., from 30th to 32d, 32½c., to F. C. Jackson & Brother.

E. Orange, N. J.—Supplying city with Tarvia, to Barrett Manufacturing Co.

Albany, N. Y.—Improvement of Myrtle ave., from Partridge to West Lawrence st., to T. Henry Dumary, \$31,231.60; improvement of Colonie st., from Broadway to Water st., to James S. Campion, \$13,358.25; improvement of Colonie st., from Broadway to North Pearl st., to M. F. Doillard, \$4,122.50.

Albany, N. Y.—Improvement of public highways by State aid: Road No. 5043, Ithaca Danby, part 1, Tompkins County, 2½ miles, to Morris Kantrowitz, Albany, \$32,800; on Trinidad, McAfee Concrete Co., Athens, Pa., \$33,720; F. V. C. Bardol, Buffalo, \$39,000; P. D. Conley, Ithaca, N. Y., \$35,847; Edwin D. Baker, Binghamton, \$37,512. Road No. 5037, Hinchfield Springs-Schuyler Lake, Otsego County, 3.50 miles, to Dorion City Construction Co., Schenectady, \$39,092; residuum products; John Harrigan, New York City, \$39,995; Chas. F. Jordan Co., Albany, \$41,147; Frank V. C. Bardol, Buffalo, \$46,000; Delaware Construction Co., Sydney, \$41,000; E. D. Baker, Binghamton, \$40,981. Road No. 492, Lake, part 2 and 4th section, Monroe County, 5.75 miles, to F. A. Brotsch, Rochester, \$16,400; Rinton & Murphy, Rochester, \$44,315; Chambers & Grady, Rochester, \$48,500; F. V. C. Bardol, Buffalo, \$52,000; Whitmore, Rauber & Vicinus, Rochester, \$41,769; Jos. Dunphy, Syracuse, \$45,127; Schroeder-Hicks Construction Co., Rochester, \$42,500; Frank L. Cohen, Buffalo, \$42,600; John Miller, Buffalo, \$43,226; John Palace, Lockport, \$44,449; Thos. Holahan, Rochester, \$43,500; Hucknoll Construction Co., Albion, \$42,702. Road No. 853, Batavia-Elba, Genesee County, 4.07 miles, to John Miller, Buffalo, \$16,184; F. A. Brotsch, Rochester, \$16,800; Mosier & Summers, Buffalo, \$17,400. Road No. 856, Genesee Village, Livingston County, 1.32 miles, to Schroeder, Hicks Contracting Co., Rochester, \$16,900; residuum products; McCarthy & Siverson, Mt. Morris, \$17,184; Fraser & Lowe, Genesee, \$17,769; F. V. C. Bardol, Buffalo, \$20,000. Road No. 686, Woodsport-Cato, Cayuga County, 8.72 miles, to Morris Kantrowitz, Albany, \$101,900; Jos. H. Conners & Co., Fulton, \$107,690; Frank L. Cohen, Buffalo, \$109,-

800; Mosier & Summers, Buffalo, \$110,000; Albert Gaffey, Syracuse, \$112,900; Fred'k A. Brotsch, Rochester, \$109,000; Newport Construction Co., Newport, \$116,300; Byrnes Bros. & Holly, Watertown, \$116,600; Thos. Holahan, Rochester, \$113,050; Thos. O'Hearn, Yonkers, \$116,110. Road No. 5015, Canandaigua Village, Ontario County, 1.19 miles, to Clarence Aikenhead Co., Rochester, \$22,000, residuum products; Mulderey Bros., Albany, \$22,364; F. V. C. Bardol, Buffalo, \$26,000; Mosier & Summers, Buffalo, \$22,500; Fred'k A. Brotsch, Rochester, \$24,700; Robt. W. Hensen, Geneva, \$26,201; M. F. Doillard, Albany, \$22,905; Thos. Holahan, Rochester, \$23,000; Haganman, Miller & Hagaman, Rochester, \$23,200; Mohawk Engineering and Construction Co., Schenectady, \$23,487; Whitmore, Rauber & Vicinus, Rochester, \$22,200; Schroeder, Hicks & Contr. Co., Rochester, \$23,900. Road No. 746, Carley's Mills-Parish, Oswego County, 1.12 miles, to Parrett & Robberticco, Utica, \$9,890; J. H. Conners & Co., Fulton, \$11,335. Road No. 598-A, Norwich-Preston, Chenango County, 0.22 mile, to Newport Construction Co., Newport, \$5,900; E. D. Baker, Binghamton, \$6,600; Peratto & Robberticco, Utica, \$7,450; Delaware Construction Co., Sidney, \$7,400. Road No. 761, Deansboro-New Hartford, Oneida County, 6.32 miles, to Conroy & Nixdorf, Oneida, \$63,014; Newport Construction Co., Sidney, \$74,200; Jas. E. Martin, Poughkeepsie, \$74,900; Kennedy Roofing and Paving Co., Utica, \$69,174; Ripton & Murphy, Rochester, \$66,700; Daniel L. Mott, Utica, \$73,600; Byrnes Bros. & Holly, Watertown, \$70,738; Delaware Construction Co., Sidney, \$64,700; Morris Kantrowitz, Albany, \$63,800; Thos. Holahan, Rochester, \$66,500; J. P. Cunningham, Plattsburgh, \$69,238. Road No. 5036, Lowville-Martinsburg, Lewis County, 2.61 miles, to Morris Kantrowitz, Albany, \$33,800; on Trinidad; J. P. Cunningham, Plattsburgh, \$35,500; Semper Bros., Watertown, \$40,073; Corlear Construction Co., Schenectady, \$38,725; Byrnes Bros. & Holly, Watertown, \$38,500. Road No. 5038, County Line-Hope Center, Hamilton County, 3 miles, to Flood & Van Wert, Hudson Falls, \$37,974; Bermudez; Schroeder, Hicks Contracting Co., Rochester, \$44,481; Jas. E. Martin, Poughkeepsie, \$46,200; J. D. Moynihan & Co., Herkimer, \$40,595; John Harrigan, New York City, \$39,919. Road No. 542, School House-Caraga Creek, Fulton County, 2.69 miles, Flood & Van Wert Co., Hudson Falls, \$20,995, residuum products; Alonzo Shaw, Albany, \$37,300; Schroeder, Hicks Contracting Co., Rochester, \$35,500; Jas. E. Martin, Poughkeepsie, \$33,469; John Harrigan, Albany, \$31,949; Albert M. Baker, Gloversville, \$38,990; Spuyten-Duyvil Construction Co., New York City, \$34,870; Morris Kantrowitz, Albany, \$32,000; C. W. Trumbull, Schenectady, \$35,000. Road No. 5039, West Berne-Gallupville, Albany and Schoharie counties, 4.01 miles, to De Graff & Hogeboom, Bloomington, \$61,989, residuum products; Jos. Walker, New Paltz, \$67,554; John E. Consaulus, Kingston, \$64,762; John E. Pitou, New York City, \$68,000; Chas. F. Jordan Co., Albany, \$62,974; Ryan & Yale, Brewsters, \$64,750; Delaware Construction Co., Sidney, \$69,000; Mulderey Bros., Albany, \$78,400; Morris Kantrowitz, Albany, \$64,000; Lane Construction Co., Meriden, Conn., \$70,200. Road No. 5051, Little Neck-Old Westbury, part 2, Nassau County, 1.97 miles, to H. J. Mullen, Jamaica, N. Y., \$24,955, residuum products; Jos. A. Boyce, Long Island City, \$24,996; Andrews Bros., Mineola, \$29,875; New Commonwealth Contracting Co., New York City, \$26,940; Clancy & Van Alst., Astoria, \$25,995. Road No. 823, Falls Mills-Callecoo, Sullivan County, 4.82 miles, to Belleau & Merritt Co., Tuckahoe, \$59,943, residuum products; Dunbar Construction Co., New York City, \$61,000; Creedon & Pitou, New York City, \$70,000; Jas. E. Martin, Poughkeepsie, \$74,500; Todd Construction Co., Newburgh, 68,225; W. J. Randall, Stillwater, \$69,719; Copans & Gros, Newburgh, \$73,289; Almahar Construction Co., Albany, \$62,582; Chas. F. Jordan & Co., Albany, \$65,571; E. D. Baker, Binghamton, \$69,800. Road No. 846, Sag Harbor-Easthampton, Suffolk County, 5.30 miles, to Dunbar Contracting Co., New York City, \$62,300, residuum products; New Commonwealth Contracting Co., New York City, \$77,906; H. J. Mullen, Jamaica, \$65,000; Morris Kantrowitz, Albany, \$62,800. Road No. 5055, Riverside-Weaverstown, part 1, Warren County, 1.63 miles, to Santonia Construction Co., Albany, \$25,490, residuum; Jas. E. Martin, Poughkeepsie, \$30,900; Morris Kantrowitz, Albany, \$25,800; J. P. Cunningham, Plattsburgh, \$28,678; Linahan & Burnham, Glens Falls, \$27,051.

Fort Slocum, N. Y.—Roads to Ensinger Bros., New Rochelle, N. Y., \$3,985.

New York, N. Y.—Repairs to asphalt pavement on bridges over Harlem and in Borough of Manhattan, bids opened April 14, to the Barber Asphalt Paving Co., 30

Church st., \$8,300.—Kingsley L. Martin, Commissioner of Bridges.

Rochester, N. Y.—Paving Dewey ave., to Whitmore, Rauber & Vicinus, \$40,987; Hamilton st., to Rochester Vulcanite Co., \$9,124; sidewalks, Rocket st., to Petrosi Co., \$716.75, and grading Villa st. and laying sidewalks, to J. J. Ragan, \$1,548.80.

Cincinnati, O.—Paving Eden and Bethesda aves., to M. Sullivan & Sons, highest bidders.

Columbus, O.—Sidewalks for the elimination of the T. & O. C. and Hocking Valley Railroad crossings on west side, to Wm. Luchtenberg.

Dayton, O.—Cutting down Koehler Hill on the Union rd., to Frank Tejan, \$2,110.

Dayton, O.—Paving, to John Wroe, Newcome ave., by Nelsonville block, \$1,793.65; Peter Brothers' Paving Co., Hickory st., from Warren to Morton, by asphalt, \$4,-

736.30; to Peter Brothers' Paving Co., Hickory st., from Morton to Wayne, by asphalt, \$8,552.51; to John Wroe, Linden ave., from present paving to lot number 25327, by Nelsonville block, \$17,242.02; to J. E. Conley, Lehman, from Main to Forest, by Trimble block, \$15,389; to W. J. Kernan, Dutoit, from 3d to 6th, by Nelsonville block, \$8,-

633.38.

Toledo, O.—Paving Broadway, to Asphalt Block Co., city, \$75,207.10.

Beaver Falls, Pa.—Constructing sidewalks and placing curb, to C. B. Beemier, 15c. and 50c. per lin. ft., respectively.

Philadelphia, Pa.—Furnishing Filbertine to Park Department, to Filbert Paving and Construction Co.

Lonsdale, Tenn.—Street work, to J. J. Conner & Son, city.

Fort Worth, Tex.—Paving Throckmorton st. with vit. brick, to General Supply Co., \$2.08 per sq. yd.

Clintwood, Va.—Grading road from Clintwood to Wise County line to G. E. Taylor.

Danville, Va.—Paving W. Main st., bituminous, to Atlantic Bitulithic Co., Richmond, \$55,875.

Harrisonburg, Va.—Road roller and sprinkler, to Garber & Garber, \$1,850 and \$190, respectively.

Aberdeen, Wash.—Road to Pinckney & Strommer, city, \$25,175.

Everett, Wash.—Improving N. Capitol Hill to Ellenson & Thorsvåg, \$22,910.

Olympia, Wash.—State Aid Road No. 30 to Frank Mears, city, \$10,200.

Seattle, Wash.—Five miles of road to J. T. Donaldson & Co., \$18,519.

Platteville, Wis.—Paving Main and 2d sts. with brick, bids opened April 14, to Thos. E. Wooley, La Crosse, Wis., \$13,967.

BIDS RECEIVED

Bridgeport, Conn.—Paving Elm st.: Silliman & Godfrey, for material and labor other than the blocks, \$1.69 per sq. yd.; American Wood Cresuting Co., block to be laid by Silliman & Godfrey, \$1.82 per sq. yd. Wykoff Wood Block Co., for blocks without guarantee, \$1.64; with guarantee, \$1.65; blocks per thousand, \$31. Biltz Construction Co., material and labor only, not including blocks, \$1.69. Mack Manufacturing Co., Barber wood blocks, without guarantee, \$1.65; with guarantee, \$1.75; U. S. Wood Preserving Co., without guarantee, \$1.83; with guarantee, \$1.85. Burns & Co., material other than blocks, 93c. per sq. yd. W. H. Arthur, of Stamford, material and labor, \$1.35, excluding blocks. Broad st.: Silliman & Godfrey, Hammond brick, \$1.28 per yd., or \$28 per thousand; labor and material, \$1.69 per yd. Metropolitan Paving Brick Co., using Canton, O., shale brick, \$1.25 per yd., or \$31.25 per thousand. Biltz Construction Co., labor and material other than brick, \$1.69 per yd. Mack Manufacturing Co., \$1.22 per yd., or \$29 per thousand, which is 52c. per yd. less than any previous bid by same company. Burns & Co., sand, etc., except brick block, 93c. per yd. W. H. Arthur, labor and material, except brick, \$1.47; or paved with Mack brick, \$2.65 per yd.

Washington, D. C.—Grading S st., N. W., between 2d and 3d sts., as follows: I. H. Fisher, 27c. per cu. yd.; George Hyman, 64c.; Holton Construction Co., 69c.; R. E. Boisseau, 95c.; E. G. Gummel, 55c.; Urban & Bradley, 66c.

Peoria, Ill.—Paving Buena Vista ave.: Illinois Cement & Construction Co., \$6,631; I. D. Lain, of Bloomington, \$7,220; Jansen & Zoeller, \$6,251. Alley paving: Illinois Cement & Construction Co., \$807; I. D. Lain, \$831; Jansen & Zoeller, \$850.50.

Evansville, Ind.—Paving portion of Powell ave.: Western Construction Co., asphalt, \$1.96 per yd. Brick paving: Bedford-Nugent Co., bids \$1.51 on Clinton brick, \$1.48½ on Bloomfield brick, and \$1.85 on Mack block; Hollerbach-May Co. bids \$2 on Mack repressed brick, \$1.58 on Carlyle brick, and \$1.95 on Mack repressed block; Stinchfield & Reichert bids \$1.87 on Mack block, \$1.48 on Porter block, and \$1.54 on Indiana block. Marginal curbing: Western Construction Co., 49c.; Bedford & Nugent,

25c.; Hollerbach & May, 30c.; Stinchfield & Reichert, 25c.

Fort Wayne, Ind.—Paving, Berry st.; Barber Asphalt Co., for sheet asphalt, \$9.09 per lin. ft.; Moellering Construction Co., brick \$6.45; cresote block \$9.82; Board will choose asphalt. Division st.: Barber Asphalt Co., sheet asphalt, \$8.06 per lin. ft.; Derheimer & Sons, pressed brick, \$8.29; Trippe & Sons, Bessemer or Metropolitan block, \$8.22; Moellering Construction Co., brick, \$8.31; Oscar Menefee, brick, \$8.18; Board favors brick. Pontiac st.: Moellering Construction Co., for Metropolitan block paving, \$1.50 per sq. yd.; excavation, 45c. per cu. yd.; curb, 60c. per lin. ft. Derheimer & Sons, for Bessemer block, \$1.56; excavations, 40c.; curb, 50c. Trippe & Sons, for Metropolitan or Bessemer block, \$1.45; excavation, 40c.; curb, 55c.; Board favors brick.

Saginaw, Mich.—Sheet asphalt to A. Glinas; brick, Baum st., to Z & J. Lalonde; Millard and Jefferson sts. to W. N. Sager.

Yonkers, N. Y.—Furnishing 8,000 cu. yds. trap rock: Rockland Lake Trap Rock Co., \$1.05; Clinton Point Stone Co., \$1.05, and Manhattan Trap Rock Co., 97c., price given per cu. yd. discharging same; Edward McGinn, low bidder, 17½c. per cu. yd.

Raleigh, N. C.—Paving, 27,500 yds., on 4-in. foundation of cement concrete: Wm. F. Bowe, Bessemer block paving, \$56,375; Wm. F. Bowe, wood block, \$64,350; Southern Paving and Construction Co., asphalt, \$59,-

125; R. H. Richardson & Son, Peebles brick, \$61,187; Barber Asphalt Paving Co., \$55,825; Atlantic Bitulithic Co., bitulithic, \$55,000; Julius Frederick Co., asphalt, \$62,975; Peter Brothers Paving Co., asphalt, \$46,750.

Wilkesbarre, Pa.—Paving four streets, Hanover Township: Mullock Co., Metropolitan brick, \$2.23 per yd. for streets in Newtown; \$2.19 per yd. for Oxford st., McAvoy brick; \$2.16 for Newtown streets and \$2. for Oxford st. Lehigh & Wilkesbarre Coal Co., Metropolitan brick, \$2.25 per sq. yd. for Newton streets and \$2.23 for Oxford st.; McAvoy brick, \$2.10 per sq. yd. for Newtown streets and \$2.02 for Oxford st. T. F. Conyngham Co., no bid on Metropolitan brick; for McAvoy brick, \$2.39 per sq. yd. for Newtown and Oxford streets. R. M. Rosser Co., Oxford st. only, \$2.30. Porter brick.

Ellensburg, Wash.—Paving, bituminous: Warren Construction Co., \$147,772 cash. Asphalt: D. A. Williams Co., \$134,670 cash; D. A. Williams Co., \$138,258 bonds; Coast Construction Co., \$151,039 cash; Barber Asphalt Co., \$151,172 cash; Barber Asphalt Co., \$154,014 bonds. Brick: D. A. Williams Co., \$176,530 cash; Coast Construction Co., \$177,483 cash; Keasel Construction Co., \$178,293 cash or bonds; D. A. Williams Co., \$181,450 bonds; Pacific Paving Co., \$204,463 cash; Pacific Paving Co., \$214,600 bonds. Granatoid pavement: Rudolph S. Blom, \$161,791 bonds.

SEWERAGE

Little Rock, Ark.—City will reconstruct Ashley st. sewer; cost \$15,000.—E. A. Kingsley, City Engineer.

Morrillton, Ark.—City has decided to construct 3½ miles of sanitary sewer and septic tank.—Lund & Hill, Little Rock, Engineers: M. A. Metzger, Secretary.

Colton, Cal.—Citizens have voted \$65,000 bonds for construction of sewers.—M. L. Brown, Engineer.

Fresno, Cal.—City will construct sewer system for proposed annexation district; cost \$23,925.—Chris. P. Jensen, City Engineer.

Washington, D. C.—Commissioners have rejected bids for construction of several sewers in District.

Atlanta, Ga.—City will build number of lateral trunk sewers at cost of \$82,000.

College Park, Ga.—Citizens will vote May 20 on \$65,000 bonds for construction of sewer system, water works and electric lighting plant.

Dublin, Ga.—City is considering election on voting on \$40,000 bonds for extension of sewer system and other improvements.

Fort Valley, Ga.—City is considering issuance of sewerage and water works bonds.

Macon, Ga.—Council will adopt specifications for laying sewers under \$100,000 bond issue and ask for bids. Address City Engineer Anderson.

Grangeville, Ida.—Contract will soon be let for constructing sewer system; cost \$40,-

000.—Walter Hovey Hill, Engineer Sewer Committee.

De Kalb, Ill.—Extension of sewer system in east part of town is being considered.

Mount Morris, Ill.—Town Board of Trustees has passed ordinance for construction of sewerage system; cost \$15,000.

Pearl City, Ill.—Plans have been prepared by Engineers Alvord & Burdick, Chicago, for sewers in two districts. Address Mayor Crizelman.

Venice, Ill.—Council has completed plans for sewer system; cost \$18,000.

Webster, Ill.—City is considering installation of sewerage system.

Anderson, Ind.—Plans have been prepared by City Engineer G. A. Lampher for vit. tile storm and sanitary sewers for west side; cost \$6,500.—Morris Collins, Clerk Board of Public Works.

Indianapolis, Ind.—Specifications have been completed by the City Engineer for sewer and street improvements; bids will be asked about May 1.

Columbus Junction, Ia.—Council is considering construction of sewer system.

Corydon, Ia.—Citizens have voted \$45,000 sewerage and water bonds.

St. Francisville, La.—Citizens are considering construction of sewerage system.

Medford, Mass.—City will lay about 1,600 ft. of 15-in. and about 10,000 ft. of 8-in. pipe sewers.—Fred L. Cushing, Clerk Water and Sewer Board.

Battle Creek, Mich.—Council has passed resolutions for constructing sewers in various streets.—H. C. Hawk, Chairman Board of Public Works.

Calumet, Mich.—Plans have been completed by City Engineer Craig for sewerage unsewered sections of West Hancock; also preparing plans for sewers in Wright Addition.

Detroit, Mich.—Council has directed Department of Public Works to advertise for proposals for constructing five vit. crock lateral sewers through alleys.—J. J. Haarer, Commissioner.

Grand Haven, Mich.—Council has accepted plans by City Engineer for constructing sewers in number of streets.

Jackson, Mich.—Citizens have voted \$25,-

000 bonds for constructing sewers.

Albert Lea, Minn.—All bids for constructing sewers opened April 15 have been rejected and new bids will be received May 5.—Wm. Barneck, City Engineer.

Duluth, Minn.—Council has directed City Engineer to make estimates of cost of constructing storm sewer in 10th ave.

Maryville, Mo.—Council is considering construction of sewer on E. 3d st.

Libby, Mont.—State Board of Health has approved plans for proposed sewer system.—Dr. Tuttle, Secretary.

O'Neill, Neb.—Council has adopted plans for system of sewerage; cost \$16,000; citizens will vote May 16 on bonds.

St. Paul, Neb.—City has selected J. S. Worley Co., Reliance Bldg., Kansas City, Mo., to prepare plans for sewer system.

Tecumseh, Neb.—City Engineer R. C. Gore has completed surveys for proposed sewerage mains.

Bridgeton, N. J.—Council will adopt ordinance providing for construction of sewage disposal plant; cost \$40,000.

Patterson, N. J.—Council has finally passed ordinance for construction of sanitary drain in Lakeview section; also ordinances for construction of sewers in portions of 13 streets.

Watertown, N. Y.—Board of Public Works will construct 10-in. sewer in Sherman st.

Asheville, N. C.—City Engineer B. M. Lee has completed map of section of city south of College st. and east of Main st., preparatory to construction of sewer system; cost \$9,000.

Ashatabula, O.—Plans will be prepared by City Engineer for construction of sewer on Summer st.

Bellefontaine, O.—Riggs & Sherman, of Toledo, have prepared plans for city's sanitary sewer system; cost \$165,000.

Eaton, O.—Town has sold \$5,000 sewerage bonds to Hayden-Miller Co., of Cleveland, at premium of \$102.50.

Galion, O.—Bradbury & Schutte, of Columbus, have prepared plans for construction of sanitary sewers and disposal plant.

Hamilton, O.—Engineer F. E. Weaver has prepared plans for sanitary sewer on Park ave.; cost \$1,319.

Lancaster, O.—Plans and specifications will be prepared for the continuance of the West Side sewer.

Middletown, O.—Plans have been prepared by City Engineer W. E. McElree for reinforced concrete sewer; cost \$8,000; bids will be asked about June 15.

Niles, O.—Plans are being prepared for enlargement of Sewer District No. 1.

Steubenville, O.—Council has decided to construct sewer on N. 7th st.

Independence, Ore.—Citizens have voted \$20,000 sewer bonds.

Bristol, Pa.—Installation of sewerage system is being considered.

Glassport, Pa.—Thomas W. White, McKeesport, has been engaged by Borough Council to prepare plans for a comprehensive sewer system with a view of a sewage disposal plant as required by State Board of Health.

Reading, Pa.—Council is considering two bills for sewer construction; length eight squares.

Williamsport, Pa.—Mayor C. D. Wolfe has recommended \$150,000 bond issue for sewer and street improvements.

Madison, S. D.—Election on installation of sewerage system is being considered.

Scotland, S. D.—Dakota Engineering Co. will prepare plans for sewerage system; cost \$40,000.

Yankton, S. D.—Council has approved plans by City Engineer for redistricting city for sewerage.

Bryan, Tex.—Council has decided that city should own its sewerage plant.

Norton, Va.—Bids will be received May 10 for \$70,000 bonds for installing sewer system, erecting town hall and improving streets.—J. J. Body, Mayor.

Ferndale, Wash.—Town is considering installation of sewer system.

Pasco, Wash.—Plans have been prepared for sewer system.

Spokane, Wash.—Council is considering construction of sewers in about 11 streets.

Adamston, W. Va.—Town Council has granted to J. C. Southern to construct and operate sewerage and water systems.

New Westminster, B. C., Can.—Plans have been completed for construction of 20 miles of sewers.

Regina, Sask., Can.—Citizens have voted \$10,000 bonds for sewerage extensions.

CONTRACTS AWARDED

Trinidad, Col.—Sewer on Pine st., to John McEwan and David Henry; 2d st., 90c. lin. ft.; lampholes, 30c.; manholes, \$59; if flusher is placed in manhole, \$29 extra; 3d st., sewer, 85c. lin. ft.; lampholes, 30c.

Hartford, Conn.—Homestead ave. sewer to Ryan-Unmack Co., New Haven, \$22,033.

Atlanta, Ga.—Sewers, as follows: To Burton & Driscoll, Cary, West and Shepherd sts. and Park ave., \$50,172; to J. C. Cheatum, 17th st., \$6,986; and to I. J. Smith & Co., Inc., Cary st., \$7,717.

Canton, Ill.—Sewers, bids opened April 14, to E. R. Harding, Racine, Wis., at following bid: 22,272 lin. ft. vit. pipe storm water sewer, 10 to 24 in., 31c. to \$1.25 per lin. ft.; 7,060 lin. ft. brick sewer, 30 to 42 in., \$2 to \$2.60 per lin. ft.; 10,456 lin. ft. vit. pipe sanitary sewers, 8 to 24 in., 47c. to \$3.80; relaying 6,375 ft. vit. pipe, 10 to 24 in., 56c. to \$3.80 per lin. ft.; 1 septic tank complete \$3,000; total \$51,239. Totals of other bids: F. M. Benner & Co., Marion, Ind., \$63,363; W. C. Jucksch, St. Louis, Mo., \$55,276; Althaus Construction Co., St. Louis, Mo., \$54,462; Independent Construction Co., Davenport, Ia., \$54,587; H. J. Rees, Quincy, \$51,582; Ottawa Construction Co., Ottawa, \$51,433.

Fort Wayne, Ind.—Sewer, Forest Park, to Derneimek & Sons, \$1.03 per lin. ft.

Louisville, Ky.—Contract 62, to C. T. McCracken & Co., of Columbus, O., at the following bids: 5,200 lin. ft. earth excavation, \$9 to \$6, and 90 cu. yds. earth excavation, \$2; 5 cu. yds. rock excavation, \$8; 5,000 cu. yds. concrete masonry, \$9; 8 cu. yds. brick masonry, \$15; 70 sq. yds. vit. brick paving, \$3; 512,000 lbs. plain steel, 3.5c.; 495,000 lbs. deformed steel, 3.5c.; 50 cu. yds. excavation below masonry, \$3.50; 50 cu. yds. gravel refill, \$3.50; vit. pipe, \$610.22; 60 lin. ft. pipe to lay, 50c.; 1,000 lin. ft. 8-in. underdrain, 20c., and cleaning up, lump sum, \$250; total cost \$102,643. Totals of other bids: J. Connally Construction Co., Cleveland, O., \$131,546; M. J. Millner & Sons Co., Louisville, \$158,159; American Engineering and Construction Co., Chicago, Ill., \$179,399; Henry Bickel Co., Louisville, \$206,777.

Lawrence, Mass.—Sewer, Lake st., to Jacob Wagenbach & Sons, \$2,433.78.

Manchester, N. H.—Sewer pipe for street and Park Commission to Eastern Clay Goods Co., Boston.

Oklahoma City, Okla.—West side sanitary and main storm sewer, to J. O. Severns, \$13,093.20 and \$823.50, respectively.

Knoxville, Tenn.—Washington ave. sewer, to J. A. Ahier Plumbing Co., \$2,000.

Monroe, Wash.—Sewers, 1½ miles, to Everett Construction Co., Everett, \$13,800.32.

BIDS RECEIVED

Ansonia, Conn.—Sewers, F. B. & W. H. O'Neill, Hartford, low bidders, \$3,932; Raymond Bros., South Norwalk, lowest for furnishing vit. pipe for year.

Detroit, Mich.—Constructing Fairview sewers and pumping station, Carey Construction Co., low bidders, \$135,520.

Minneapolis, Minn.—City sewer pipe contract for year, bidders: Red Wing Sewer Pipe Co., \$62,779; Blackmar & Post Co., St. Louis, Mo., \$64,552, and Evans & Howard, St. Louis, Mo., \$66,198.

Hamilton, O.—Sewers, Rhea av.: John H. Hiatt, \$2,981.50; Wirtz & Trunck, \$3,306; Garver Contracting Co., \$3,440.10; Miami Cement Co., \$3,506.63. Sanitary sewer system, Third Ward: W. H. Louthan, \$11,066.20; Garver Contracting Co., \$13,087.75. North E st., sanitary: Garver Contracting Co., \$1,631.

Arnold, Pa.—Sewer in 14th st., F. M. Roessing, 601 Ferguson Bldg., Pittsburgh, low bidder, \$12,311.

WATER SUPPLY

Gadsden, Ala.—Council has adopted plans for rebuilding pumping station and settling basin of municipal water works plant.—J. N. Hazlehurst, Atlanta, Ga., Engineer.

Montgomery, Ala.—Council will advertise for bids on 5,000,000-gal. reservoir to be erected adjoining pumping station and water works.

Talladega, Ala.—City has selected J. C. McCrary & Co., Candler Bldg., Atlanta, Ga., as engineers in charge of construction of system to pipe water from Talladega Creek in mountains.

Ozark, Ark.—City is considering construction of water works; surveys being made.

Searcy, Ark.—Bids will be received about May 15 for construction of water works; cost about \$50,000.—W. S. Shields, Chicago, Ill., Engineer.

Texarkana, Ark.—Council has ordered drilling of wells to supply water for proposed \$200,000 water works system on west side.—J. W. Maxey Co., Dallas, Tex., Engineers.

Chico, Cal.—J. A. Peck is Chairman of committee securing estimates on water mains and fire apparatus for South Chico District.

Oakland, Cal.—Bay Cities Water Co. is making arrangements for tender in immediate future of complete water service for all towns and villages lying between city and eastern line of Alameda County.

San Francisco, Cal.—Park Commissioners have asked for \$10,000 for extension of water pipes and \$24,000 for water supply.

Sacramento, Cal.—Mayor M. R. Beard has signed resolution passed by Board of Trustees calling for a special election on \$666,000 bonds for clear water.

Yuma, Cal.—Citizens have voted to increase water supply.—H. C. Hock, Mayor.

New Britain, Conn.—City has awarded \$150,000 water bonds to R. L. Day & Co. at \$99.189.

Pensacola, Fla.—Council has authorized construction of one mile of water mains; cost \$4,100.—L. Earle Thornton, City Engineer.

College Park, Ga.—Citizens will vote May 30 on \$65,000 bonds for construction of water works and other improvements.

Dublin, Ga.—City is considering \$50,000 bond issue for extension of water works.

Fort Valley, Ga.—City is considering water works and sewerage bond issue.

Idaho Falls, Ida.—Citizens have voted \$95,000 bonds for building water works and power station.—L. C. Kelsey, Salt Lake City, Engineer.

Herrin, Ill.—City proposes to construct "eservoir"; cost \$75,000.—N. L. Walker, Mayor.

Kankakee, Ill.—Board of Administration, State Capitol, Springfield, has rejected all bids for the construction of steel tower and tank and Kankakee State Hospital.—Frank D. Whipple, Fiscal Supervisor.

Macomb, Ill.—Citizens have voted \$40,000 water bonds.

Mishawaka, Ind.—A. T. Maltby will investigate pure water situation.

Animosa, Ia.—City will expend \$5,000 for extension of water mains.

Corydon, Ia.—Citizens have voted \$45,000 water and sewerage bonds.

Council Bluffs, Ia.—Mayor Maloney has recommended extension of water mains to hill and bottom districts.

Portsmouth, Ia.—Citizens have voted \$3,500 bonds for water works; bids for construction will be received about May 1: engineer not selected.—Wm. Thomas, Town Clerk.

Silver City, Ia.—Committee, C. G. Greenwood, Chairman, is considering installation of municipal water plant.

Mineral City, Kan.—City will expend \$5,500 for water main extension.

Oakley, Kan.—Citizens have voted \$40,000 bonds for establishing water works and electric light system.

Stafford, Kan.—City has rejected bids received for \$45,000 water and light bonds. Address Mayor Mullen.

Baltimore, Md.—Park Heights Water Co. is planning to install central power station; numerous wells will be dug and substations erected.—Jas. R. Reed, Consulting Engineer.

Brunswick, Md.—Governor Crothers has signed bill providing for construction of water works.

Taunton, Mass.—Council has appropriated \$20,000 for water works extensions, including about 2½ miles of 6 and 8-in. mains.

Quincy, Mass.—City has awarded \$300,000 water bonds to G. A. Fernald & Co. at \$102,876.

Uxbridge, Mass.—Town has voted to borrow \$5,000 to extend present water system.

Bovine City, Mich.—Citizens have voted \$25,000 bonds for installation of water system.

Saginaw, Mich.—Citizens will vote May 9 on rebuilding water works.

St. Paul, Minn.—Water Board has issued

orders to lay mains in ten streets; aggregate length, about two miles.

Hannibal, Mo.—Citizens are urging water improvements.

Kansas City, Mo.—Grand ave. property owners are urging extension of street lights.

Lebanon, Mo.—Citizens have voted \$20,000 bonds for water works improvements.

Palmyra, Mo.—Citizens will vote May 18 on \$35,000 bonds to construct or acquire water and electric light plant.

Kalispell, Mont.—Citizens have voted to install municipal water system.

Wymore, Neb.—Council has engaged John Mohrbacher to continue with tests started last fall to locate supply of water for city use.

Belleville, N. J.—Township Committee is considering construction of 18-in. water main in Joralemon st.

Camden, N. J.—Ocean Township Water Co., which will apply for a franchise to construct and operate water works in Ocean Township, Monmouth County, has been chartered; authorized capital stock \$100,000.—George Reynolds, Burlington; Howard Trotter, Riverton; Ephraim Tomlinson, William I. Tomlinson, city, and William H. Roth, George M. Bunting and H. Dodge, Philadelphia, Incorporators.

East Orange, N. J.—Water Commission is considering replacing 4-in. mains in Washington pl. with 8-in. mains.

Auburn, N. Y.—Citizens will vote on erection of filtration plant.

Canandaigua, N. Y.—City is considering construction of pumping station.

Dunkirk, N. Y.—Niagara and Erie Power Co. will petition Council for authority to supply Brooks plant with electricity for power, heat and light.—Harry James, Mayor.

Niagara Falls, N. Y.—Mayor Douglass has recommended extension of water pipe for new water works into Canadian or Emerald Channel; cost \$116,000.

Saranac Lake, N. Y.—Citizens will vote May 3 on appropriating funds to lay water mains in two avenues; Engineer Collins will prepare estimates.

Concord, N. C.—Plans have been prepared by Engineer G. C. White, Durham, for water works; automatic pumps will be installed; cost \$40,000.

East Spencer, N. C.—Citizens have voted \$25,000 bonds for water works and electric light plant.

Cleveland, O.—Council is considering \$1,100,000 bond issue for extension of the West Side Water Tunnel and for additional equipment at old Division pumping station.

Dayton, O.—Council has authorized \$20,000 bond issue for construction of pumping station and sinking of additional wells in Mud River.

Dunkirk, O.—Citizens will vote May 9 on \$21,000 bonds for installing water system.

Millersburg, O.—Citizens have voted \$8,000 bonds for extension of water works.

Utica, O.—Citizens have voted to construct water works.—J. W. McKelvy, Village Clerk.

Ada, Okla.—City proposes to pipe water from Byrd's Mill to city; cost \$150,000.

Portland, Ore.—Bids for proposed new main which Portland Water District will build from Lake Seabago to this city will be advertised for within a month.

St. Helens, Ore.—Citizens have voted \$50,000 bonds for municipal water system.

Beaver Falls, Pa.—Water Co. will at once make needed improvements. J. T. Taylor is interested.

Boyertown, Pa.—Council has decided to drill number of artesian wells.

Bristol, Pa.—Council is considering acquisition of water works.

Flourtown, Pa.—Springfield Consolidated Water Co. will install 22 fire plugs in this vicinity.

Greencastle, Pa.—City has sold \$30,000 water bonds.

Pittsburg, Pa.—Filtration Committee of Councils has unanimously approved four ordinances providing for extension of filter plants at Aspinwall.

West Easton, Pa.—West Easton Water Co. has been chartered to supply this place with water.

Wickford, R. I.—Installation of water system is being considered.

Aiken, S. C.—Citizens have voted to install water system.

Decherd, Tenn.—City has granted C. E. Murray franchise to construct water works.

Bryan, Tex.—Council has decided that city should own its water plant.

Cotulla, Tex.—City will grant franchise for water works.—C. F. Binkley, Mayor.

El Paso, Tex.—Mayor J. U. Sweeney has recommended that fire hydrants be placed closer together.

Beaver City, Utah.—Water works system will be installed at once. George C. Buckle, of Salt Lake, Assistant Attorney General; E. C. McGarrey, Wilford Robinson, F. P. Kesler and R. H. Smith are interested.

Provo, Utah.—Citizens will vote May 24 on \$80,000 water works bonds.